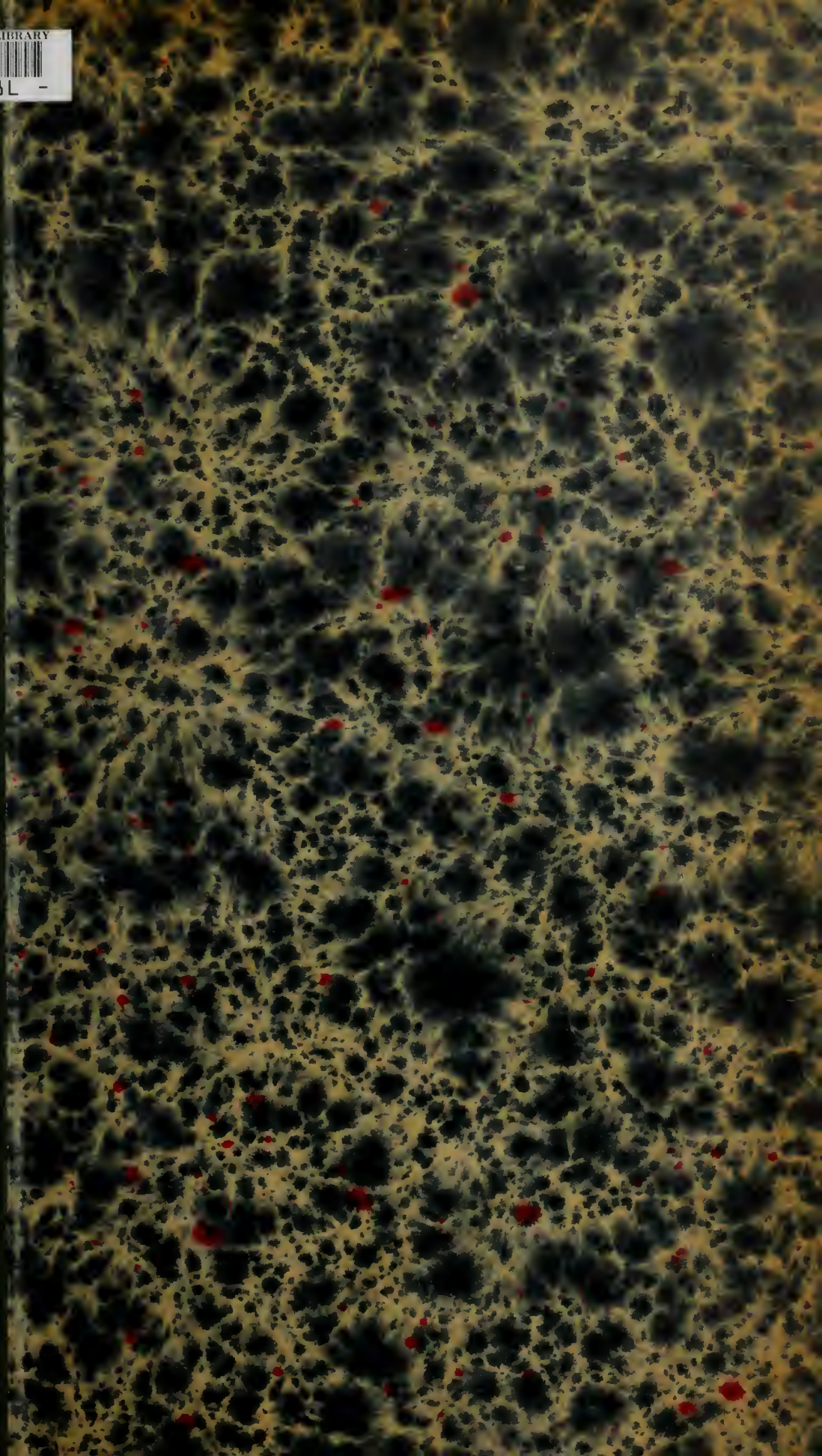


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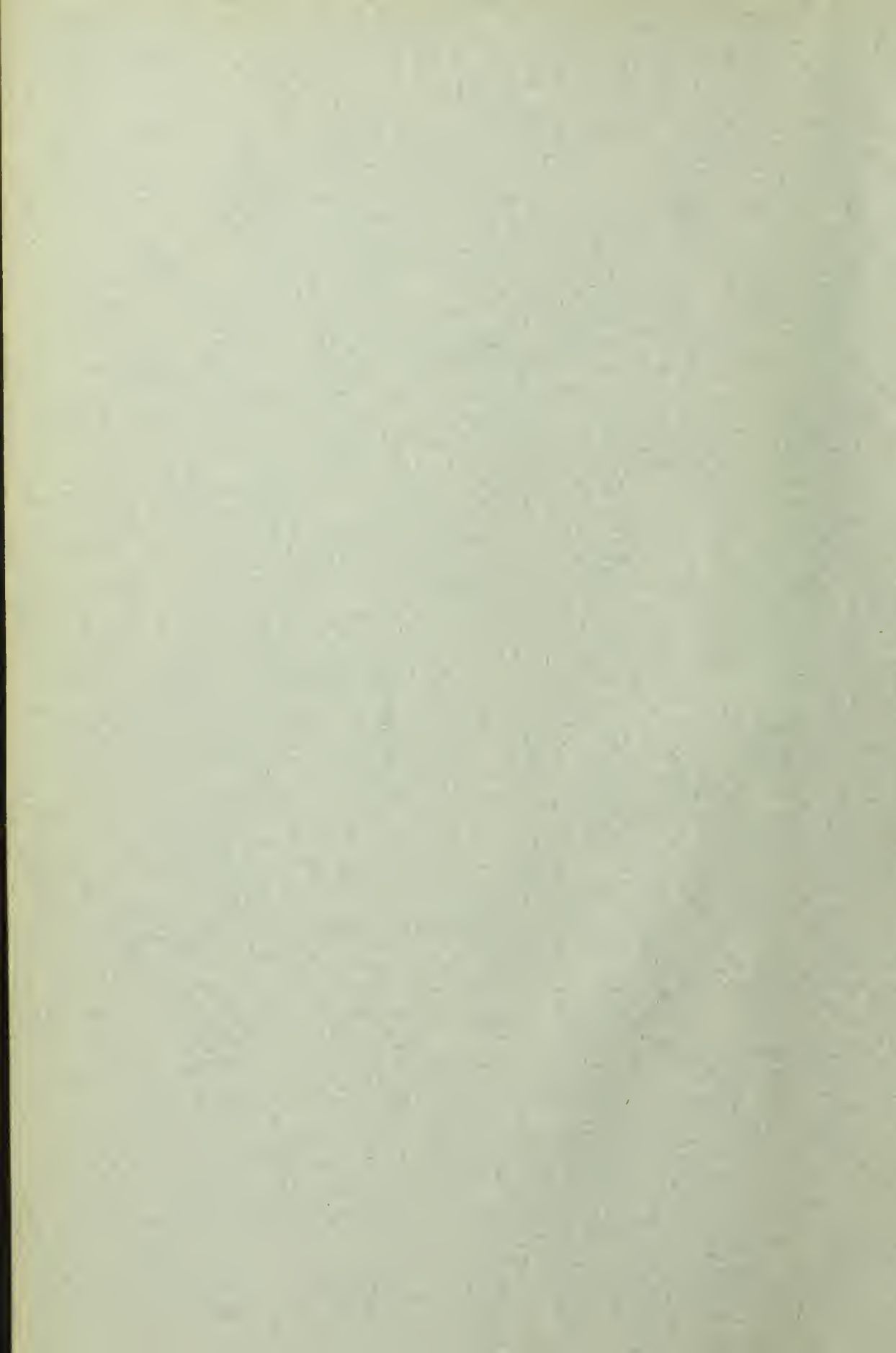
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# THE JOURNAL

*of the*

## Missouri State Medical Association

The Official Organ of the State Association and Component Societies  
Issued Monthly Under Direction of the Publication Committee

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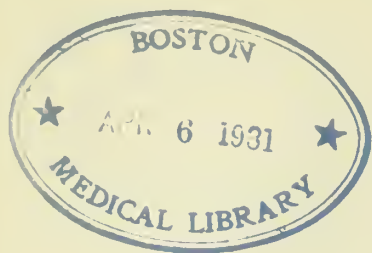
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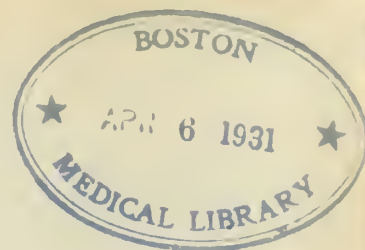
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### ORIGINAL ARTICLES

#### FETAL LIVER FEEDING IN APLASTIC ANEMIA\*

REPORT OF A CASE

J. H. J. UPHAM, M.D.

AND

G. I. NELSON, M.D.

COLUMBUS, OHIO

The term primary aplastic anemia as a clinical entity should be reserved for a type of anemia whose etiology is unknown and which, when untreated, runs a progressively downward and fatal course in from a few weeks to a few months. It usually occurs in young individuals under thirty years of age. The first manifestations are weakness and pallor, due to the anemia. Later there are marked hemorrhagic tendencies. The course is frequently febrile; the anemia and leukopenia are severe and there is no evidence of increased blood destruction or regeneration. Whatever the cause may be it is evident that the chief effect is to inhibit, partially or totally, the formation of new blood elements in the bone marrow, i. e., white blood cells of the granulocytic series, red blood cells and blood platelets.

Secondary aplastic anemias are not rare and present similar clinical pictures. Such conditions may occur as terminal events in pernicious anemia. For want of a better explanation we consider this due to a fatigue of the bone marrow. In certain cases of overwhelming sepsis there is the development of anemia and purpura which we may ascribe to the toxic action on the bone marrow. Certain exogenous poisons, especially benzol, which we know is a specific marrow depressant as well as a leukotoxin, will produce an aplastic anemia of very severe degree. Leukemias, osteosclerosis, diseases of the kidneys, cirrhosis of the liver, and many other conditions inhibit the

formation of blood elements in the bone marrow to a greater or lesser degree and may be considered aplastic anemias. In these, however, there is a primary etiological factor so that we may consider the anemia as secondary.

The case we shall discuss we believe to be one of primary aplastic anemia. It is of special interest because of the prolonged course of the disease and the type of response to treatment. The patient has been under continuous observation for the past two years at the University Hospital, Columbus, Ohio.

#### REPORT OF CASE

White male, aged 21, senior in college, was admitted to the University Hospital April 20, 1927, complaining of general weakness and bleeding from the gums.

*Present Illness.*—He was apparently well until seven weeks prior to admission to the hospital. At that time he was playing on the college basketball squad and he noted that he was not quite as strong as usual. His friends remarked that he looked pale. He continued his usual activities for about two weeks more, although he felt that his strength was decreasing. He was then taken ill with measles and sore throat which kept him out of school for one week. He then returned to school but was quite weak and began to note palpitation of the heart on slight exertion. He continued in school for about three more weeks when, because of his pallor and lack of strength, he again consulted a physician. His hemoglobin was read and on finding it very low his physician advised him to enter the University Hospital.

*Family History.*—Negative for all chronic or similar diseases.

*Personal History.*—Patient was born in Philippine Islands. At the age of ten he came to the United States and has lived in Ohio ever since.

*Past Medical History.*—Negative and irrelevant except for an occasional sore throat.

*Physical Examination.*—Well developed and well nourished white male; shows an extreme degree of pallor. Skin and sclerae pale without yellowish tinge or pigmentation. Moderate number of petechiae over the forearms, abdomen and shins. Skin otherwise negative. Central scotoma in the field of vision of right eye. Numerous retinal hemorrhages in both eyes. Large hemorrhage in the macular region of right eye. *Mouth.* Slight oozing of blood from gums. Tonsils enlarged and pus can be expressed from their crypts. *Ears and nose.* Negative to external examination. *Neck.* Negative. Lymphatics nowhere enlarged. Pulse 100 per minute,

\* Read at the 72nd Annual Meeting of the Missouri State Medical Association, Springfield, May 13-16, 1929.

regular in force and rhythm. Wave is of the celar type. Blood pressure, 110/40. *Chest.* Lungs negative. Heart, point of maximum impulse is the fifth left interspace 7 cm. from the midsternal line. No shocks or thrills. A loud, rather low pitched systolic murmur of maximum intensity at the apex and transmitted to the left axilla. A low pitched systolic murmur at both aortic and pulmonary areas. No diastolic murmur. *Abdomen* is of normal contour, with no tumors, tenderness, or ascites. The solid organs not palpable. *Extremities* are negative except for petechiae. Reflexes are normal and equal. Sensations normal including the vibratory sensations over the shins.

*Laboratory Findings.*—Urine negative. Blood Wassermann negative. Blood culture negative. X-ray of chest and long bones negative. Stools negative for parasites and ova. Red blood cells 750,000; hemoglobin less than 10 per cent; white blood cells 1600; differential count, polynuclear neutrophils 34 per cent, lymphocytes 66 per cent. No abnormal cells. There is not the slightest evidence of stippling or polychromatophilia. No nucleated red cells. There is practically no poikilocytosis or anisocytosis. Individually the erythrocytes appear normal. Only an occasional platelet can be seen. Vital staining with brilliant cresyl blue fails to show any reticulocytes at this time. Coagulation time, 4 minutes. Bleeding time, 16½ minutes. The clot is non-retractile. Platelet count 15,000. Resistance of the red blood cells to a hypotonic salt solution is increased. The laking begins in .36 per cent NaCl, while the control begins in .44 per cent NaCl. Unfortunately, the point where hemolysis was complete was not determined in either the patient or the control blood. No increase in blood pigments in blood serum and no increase in the urobilin in the urine.

*Differential Diagnosis.*—Pernicious anemia need not be seriously considered but we believe that some of the so-called fulminating cases of pernicious anemia have been of this type. The Addisonian type of anemia is very rare in a person under 30 years of age. Out of 150 cases of undoubted primary anemias reviewed by Rohner at the University of Iowa, none were under this age limit. The marked purpuric manifestations are also rare. We felt that the absence of increased blood pigments in the blood serum and urine and the presence of free HCl in the gastric contents ruled out pernicious anemia as a diagnosis. The course of the disease for the past two years has shown still further differences. After this length of time there is still no atrophy of the mucous membrane of the tongue; there is still free HCl in the gastric contents, and no neurological signs referable to a posterolateral sclerosis have developed.

Purpura hemorrhagica presents a clinical syndrome very similar to the case described. Its differentiation is important because of the favorable results that have followed splenectomy in these cases. As a disease entity purpura hemorrhagica is essentially one in which there is a marked and constant lowering of the blood platelets in the peripheral blood.

It is not known whether this decrease in platelets is due to their destruction after they enter the blood stream,<sup>1</sup> or whether it is due to an inhibition of the function of the megakaryocytes in the bone marrow with a resultant lack of platelet formation. Whichever may be the true cause, the blood picture is consistent with bone marrow that is unable to form a normal number of platelets.<sup>2</sup> The ability of the marrow to form white blood cells of the granulocytic series and red blood cells is however retained. We consider the pathogenesis of this disease as follows: First, there is a diminution of platelets but the patient has no symptoms until they have decreased from their normal number of about 275,000 per cmm. to 60,000 or less per cmm.<sup>2</sup> When they reach the latter figure hemorrhages into the skin and mucous membranes occur. These hemorrhages are often severe and produce a moderate to severe anemia. The reaction of the erythrocytic tissue is the same, however, as in anemia due to hemorrhage from any other cause. The white blood cells also react as to any ordinary hemorrhage. In these cases we can usually account for the anemia by the frequent hemorrhages over a rather prolonged period. On examining the blood we find an anemia varying in degree from moderate to severe. The white blood cells are normal in number, or sometimes there is even a moderate leukocytosis. In the stained specimens the percentage of polynuclear cells is normal or slightly increased. There is ample evidence of red blood cell regeneration, stippling, polychromatophilia and reticulated cells. The color index tends to below one. The remainder of the blood findings,—such as reduced platelets, non-retractile clot, normal coagulation time, increased bleeding time, positive tourniquet or capillary resistance tests,—are identical with aplastic anemia.

Secondary aplastic anemias, especially those due to benzol and an aleukemic state of a leukemia, were considered. The most important factor in the diagnosis of benzol poisoning is of course the history of exposure to this chemical. Such a history could not be elicited from our patient.

It is extremely difficult to rule out an aleukemic state of a leukemia, but here again we should find some evidence of red blood cell regeneration. We should find evidences of abnormal white blood cell production. After a two year period there should have been some evidence of a return to the leukemic state, an involvement of the lymph glands, or skin manifestations, such as a leukemia cutis. Usually, the aleukemic stage of a leukemia is a terminal condition, but Edelman, of Columbus,



recently called our attention to the case of a child which he diagnosed as aplastic anemia because of a low red blood cell and white blood cell count. After one transfusion, however, the red blood cell count and hemoglobin improved, the white blood cells increased rapidly in number and the patient died some two months after the first count was made with 45,000 white blood cells and 95 per cent small lymphocytes.

Because our patient was born and lived the first ten years of his life in the Philippines, sprue, malaria, and intestinal parasites were considered, but nothing was found to indicate that any of these might be the etiological factor. It would also be unreasonable to think that any such ailment could lie dormant for ten years with the patient enjoying perfect health and then suddenly produce an anemia of such severity.

We believe that primary aplastic anemia is the most likely diagnosis because of the abrupt appearance of the symptoms and signs of a severe anemia before there were evidences of hemorrhage. Examination of the blood disclosed marked diminution of all the blood elements formed in the bone marrow, i. e., white blood cells of the granulocytic series, red blood cells and blood platelets. There was no evidence of blood regeneration as shown by the absence of nucleated red blood cells, stippling, polychromatophilia and reticulocytes. Furthermore, there was no evidence of increased blood destruction as shown by a normal icterus index, and no increase in the urobilin in the urine. The increase in the bleeding time, the normal coagulation time, non-retractile clot and positive tourniquet test all accord with the findings of an aplastic anemia.

Reports of this type of case are practically unanimous in showing that the course of the disease progresses rapidly downward to a fatal termination. Chauffard<sup>3</sup> reports one of six years duration although the diagnosis may well be doubted. Larrabee<sup>4</sup> reports a case in which there was a frank remission. Gibson<sup>5</sup> reported a case apparently of this type in a child eleven years of age. Because of the pigmented skin he suspected an adrenal insufficiency and after seven transfusions with only temporary benefits he began using adrenalin, 1:1000 hypodermically. He started with two minims daily and increased up to five minims. There was an apparent recovery. In general the disease may be considered to have a mortality of 100 per cent within a few months at most.

Our patient had many friends among his classmates in college who were anxious to do

something for him. Although we had no hope for the ultimate outcome we began to transfuse him. At first we crowded rather massive transfusions in an attempt to get his red blood cells and hemoglobin to near normal. The results were interesting but disappointing. After the first transfusion the bleeding from his gums stopped, the petechiae cleared up and he felt very much improved. There was a moderate increase in white blood cells following each transfusion, and a slight increase in polynuclear cells could be discerned.

The beneficial effect however lasted only a few days, usually from three to seven. During this time there was no bleeding, although the red blood cell count and hemoglobin dropped. At the end of the time he usually started with oozing at the gums which increased rapidly from day to day. With the onset of the bleeding the blood count and hemoglobin dropped with increasing rapidity. Occasionally when the blood count came down to a million or less a fresh crop of petechiae would appear. Our attempt during the first month was to build him up as rapidly as possible. At the end of this period, during which he had had four transfusions, his red blood cell count was 3,300,000. His hemoglobin was only 38 per cent, however, the white blood cell count 3,850, with 56 per cent polynuclear cells and 44 per cent lymphocytes.

After approximately six weeks of attempting to hold his blood count up with transfusions we saw the impossibility of doing so over a long period of time and decided to transfuse him only of necessity, i. e., to keep him from bleeding to death. The transfusion intervals from June 4, 1927, to Feb. 2, 1928, varied from sixteen to thirty days. It should be stated that during this time he was on the usual liver diet continuously. He consumed from 100 to 350 grams of cooked adult liver daily, or its equivalent in liver extract. Part of the time he was on both. He was very cooperative and ate the cooked liver for a long time without complaining of nausea or distaste for it. However, it did not seem to have any effect on his blood forming ability. We also supplemented his liver diet with various forms of iron, such as Blaud's pills, iron ammonium citrate, and albuminate of iron. He took all these without apparent effect. We used many methods in our attempts to control his bleeding, which was chiefly from his gums. He was given large doses of thromboplastin subcutaneously. As far as we could determine this had not the slightest effect on the oozing. Coagulin was used both hypodermically and by mouth, also with no effect.

In February and the early part of March, 1928, we again gave four transfusions very close together in an attempt to build up his blood count and hemoglobin to a reasonable level. It was to no avail. In fact, following these transfusions in April, 1928, he appeared to become definitely worse. Then we shortened the periods between transfusions of necessity, so that instead of varying from 16 to 30 days they now varied from 5 to 13 days. As time progressed the intervals became shorter. Everything pointed to an early exit.

In May, 1928, at the meeting of the Association of American Physicians at Washington, D. C., Dr. Berglund, of Minnesota, read a paper on the use of fetal calves' liver in secondary anemia and its effect on the hematopoiesis of normal individuals. The suggestion brought out in that paper seemed worthy of a trial in our case. We experienced some difficulty in obtaining this material. It was not until July, 1928, that we were able to obtain any of it and then only in small quantities at irregular intervals. It was given cooked in daily portions of 250 grams. There was no noticeable beneficial effect. In August, 1928, we were able to get it in larger quantities and at regular intervals. At the suggestion of Dr. C. A. Doan, of the Rockefeller Institute, we began on Aug. 7 to give it raw and in amounts of 400 grams daily. There was an almost immediate diminution in the amount of his bleeding and a consequent lengthening in his transfusion periods. After the second transfusion following the beginning of the raw fetal liver diet, there was an immediate drop in his red blood cell count and hemoglobin. He then seemed to be able to maintain this count though at a very low level. The most striking thing that occurred clinically was the almost complete cessation of the bleeding. In fact, the only bleeding which did occur was the result of slight traumata, such as brushing the teeth or biting on a piece of hard food.

Due to the increase in reticulocytes that appeared coincident with the fetal liver feeding we hoped that he might begin to increase his red blood cell count and hemoglobin without further transfusions. Since this did not occur immediately the dosage was raised to 600 grams daily in the early part of September, and in October to 800 grams and later to 1000 grams daily without any noticeable effect on his hematopoiesis. He did, however, develop a gastrointestinal upset characterized by a diarrhea, anorexia and a slight increase in temperature. Furthermore, with the 1000 grams of liver daily he was unable to take what we considered an adequate diet in the form of fruits and vegetables. The liver feeding was therefore

reduced to 800 grams daily. Since November, 1928, his daily portion has been from 600 to 800 grams. On Dec. 1, 1928, the reticulocyte count reached a peak of slightly more than 10 per cent then took a decided drop, still remaining, however, above normal. It was then evident that our patient could not raise his blood count without further transfusion so it was decided to transfuse him again. This was done on Dec. 17, 1928, after 117 days without transfusion, and again on Jan. 9, 1929. There was a definite increase of approximately 500,000 red blood cells and 15 per cent in the hemoglobin. This the patient maintained until March 9, 1929, when he was again transfused, with a similar result. The red blood cell count rose from approximately 1,800,000 to 2,400,000 and the hemoglobin from 38-40 per cent to 56-60 per cent. This level was maintained until April 13 when transfusion was again repeated. His red blood cell count is now 3,310,000, hemoglobin 64 per cent, white blood cells 6,280, polynuclear neutrophils 52 per cent, lymphocytes 48 per cent, platelet count 22,170, reticulocytes 1.6 per cent.

The clinical changes which have occurred following the institution of massive doses of raw fetal liver have been, (1) the marked diminution of purpuric manifestations; (2) the rise in the percentage of reticulocytes from an almost negligible quantity up to ten per cent and then a drop to between 1.1 per cent to 3.8 per cent where it has remained; (3) the appearance of stippled cells, polychromatophilia and, very rarely, a nucleated red blood cell; (4) the ability to maintain the red blood cell count and hemoglobin at higher levels following each transfusion; (5) increase in white blood cells from 1200 to 2000 to 3400 to 6000 although the percentage of lymphocytes is still slightly more than 50 per cent; (6) diminution in bleeding time. There has not been a corresponding increase in the blood platelets. The platelet count before the beginning of the liver therapy was from 15,000-18,000. Most of the counts made since then have been between 12,000 and 22,000, occasionally going as high as 38,000, but with no regular tendency to increase. The diminution of the purpura has been remarkable in view of the low platelet count. The bleeding time varies from  $2\frac{1}{2}$  to 8 minutes tending toward the upper limit of normal. The coagulation time is  $4\frac{1}{2}$  minutes and the capillary resistance test is still positive.

It is of course too early to draw any general conclusions. It appears evident, however, that something happened when the feeding of raw fetal liver was begun. The effect seems to have been a stimulation of the bone marrow to the production of red blood cells and, to a lesser



extent, of white blood cells of the granulocytic series, but with no discernible effect on the platelet formation. It does not seem reasonable to suppose that this could be due to a coincidence with a natural remission in the disease. It may be due to any of the following factors: (1) the feeding of fetal instead of adult liver; (2) the feeding of raw in place of cooked liver; (3) the feeding of an increased quantity; (4) a combination of the above. Insufficient work has been done to evaluate any of the factors.

The patient is still far from recovery, it is true, and the outcome cannot be predicted. He is, however, showing a response to therapy which we feel is very unusual in this disease.

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### UTERINE CURETTAGE\*

DUDLEY A. ROBNETT, M.D.

COLUMBIA, MO.

Uterine curettage is one of the oldest of gynecological procedures. The indications for and the technic of the operation have been thoroughly worked out and American textbooks on gynecology give the steps of the operation in detail. Nevertheless, I believe that curettage, which is so important and from which so much information can be obtained, is frequently neglected and often when it is performed the technic is far below a standard that would give the best results. The reason for this may be that the average surgeon considers curettage a minor operation. My experience in the department of pathology of the University of Missouri during the past seven years has proven to me that the value the patient should receive from the operation is often depreciated, and that the wealth of information regarding curettage in our literature is unknown to most of us. I base this opinion on the examination of specimens sent to our laboratory from all parts of the state. Curettage specimens come to us unfixed, mixed with blood, and even wrapped in folds of gauze or paper. Uteri removed for prolonged bleeding have shown only moderate hyperplasia of the endometrium, or even a single polyp, either condition remediable by a simple curettage and neither one demanding hysterectomy.

My opinion was strengthened recently when I failed to glean from the literature one very

important item that would have saved me a great deal of thought and work. During the past few years I have made a definite effort to develop my technic of curettage to the point where I could be sure of the contents of a given uterus. The tissue removed was carefully prepared so that the pathologist would have not only all the tissue but also have it in a blood free state so that each piece could be incorporated in the blocks from which microscopic sections were to be prepared. Examination of uteri that I had curetted in situ and then removed, also of uteri that were curetted after removal, preferably in an unfixed state, made me reasonably sure that I could, with proper care, remove all the tissue and I knew that the tissue which I had thus collected and washed out with saline solution would give an accurate histologic picture. This was the basis of what I considered would be a contribution, but I found upon further investigation that part of these steps, namely, those dealing with the collection and preparation of the specimen, had previously been described. Crossen<sup>1</sup> has outlined a splendid practical method for the collection and preservation of tissue removed at curettage. The method that he outlines is so thoroughly applicable and satisfactory that I give it in detail:

1. Remove the endometrium from all parts of the uterine cavity.

2. Put all the curettings into a small vessel immediately and shake with water to remove blood clots. If the water is so bloody that it is desired to change it for further washing, it is poured through gauze. The gauze catches the curettings, which are then emptied into fresh water. The water into which curettings are placed should be clear and clean. Normal saline solution is preferable to plain water as it causes less swelling of the cells, hence it should be used for the washing when the curettings are to be subjected to any particular or special examination.

3. Then transfer all the tissue fragments, without compression, to the small bottle containing 95 per cent alcohol or 10 per cent formal solution and send it to the laboratory.

4. If the pathologist is in a distant city, the bottle should be corked securely and put in a mailing tube or wrapped with cotton and otherwise packed securely for safe transmission.

5. With the specimen, send a note stating the nature of the specimen, such as curettings from within uterus, when obtained, name and age of patient, and some of the important facts in the history of the case.

Curettage is not a major operation, but it is one that requires technical skill and thoroughness of the highest type.

Gas-oxygen, ether, or local anesthesia, may be used. Some cases require no anesthesia. Ordinarily, ether anesthesia is best because it affords the relaxation that will allow a satisfactory pelvic examination. The external genitalia, with or without shaving the vulva,

\* Read at the 72nd Annual Meeting of the Missouri State Medical Association, Springfield, May 13-16, 1929.



should be wiped off with mercurochrome solution or alcohol. The cervix is exposed by retracting the vaginal wall with a Sims' speculum; the vagina is wiped dry and thoroughly painted with mercurochrome solution. The anterior lip of the cervix is caught with a pair of curved Fergusson forceps and gently drawn down, allowing inspection and also straightening the upper cervical canal. The cervical os is carefully wiped with gauze and its external surface and canal again painted with mercurochrome solution. A uterine sound, slightly curved, held between the index finger and thumb, is gently inserted to determine the direction, contour and depth of the uterine cavity. I believe it is safer to determine these points with the sound rather than with the dilator, but either instrument must be used with great care. Dilatation of the cervical canal should be accomplished with extreme gentleness to prevent tearing the cervix into the vascular area of the broad ligament, or perforating the uterine wall in small acutely flexed uteri. In cases of dysmenorrhea and sterility dilatation is best obtained by graduated Hegar dilators, going up to the ten or twelve millimeter sizes. The selection of the curette, whether sharp, dull, or the so-called spoon type, must be determined in each individual case. The sharp curette that is necessary and perfectly safe in normal and fibrosed uteri is a dangerous instrument in the soft, boggy, postabortive uterus. Without painstaking care and attention to the details of one's technic the accidents with which we are all familiar will occur. More important than these accidents, the purpose of the operation, whether diagnostic or therapeutic, will often be thwarted unless a most thorough procedure is carried out. Thus the endometrium may not be entirely removed or the very portion that would yield a diagnosis that might save the patient may be left behind. When we remember how difficult it is to get satisfactory biopsy specimens from exposed growths we certainly must use the utmost care when depending upon the hidden curette to obtain specimens. Cullen<sup>2</sup> has reported a case where an entire glandular cell carcinoma of the endometrium was removed by curettage—the entire growth being almost microscopic in size.

In addition to the careful use of the curette, the polyp forceps should be used to supplement the removal of tissue. Polypi may elude the curette and be left behind thus causing a continuance of the symptoms. All who have used polyp forceps to supplement curettements have at times been surprised, after a thorough use of the curette, to grasp a pedunculated polyp and remove it, giving us the diagnosis and the patient a cure almost by accident.

I do not agree with certain European gynecologists that curettage in women past the

menopause should be discontinued. They assert that irregular bleeding and prolonged abnormal discharges at that age are indications for hysterectomy. To give up curettage in this group, it seems to me, would be to discard a procedure of untold value. At this age we see many cases of hyperplastic endometria, polypi and chronic inflammatory conditions that curettage will cure. Furthermore, curettage properly done with careful histologic examination will diagnose cases of malignancy in which radical surgery will give satisfactory results. Rather than resort to hysterectomy for these benign conditions, it would seem far more rational to rely on curettage, supplemented where necessary by cauterization or radiation, and trachelorrhaphy, for coexisting chronic infections, erosions, hyperplasias, and old lacerations of the cervix.

In chronic endometritis, hyperplastic endometria, certain cases of dysmenorrhea, selected cases of sterility, retained products of abortion, including hydatidiform mole (more properly termed vesicular mole), and polypi, curettage acts not only as a diagnostic but also as a curative procedure. In extra-uterine pregnancy about ten per cent of the endometria show decidua; however, negative findings in this group must be disregarded because the intra-uterine decidua formation is too variable. In carcinoma and more rarely tuberculosis of the endometrium, sarcoma, chorion epithelioma and endothelioma, the procedure is entirely diagnostic.

With the present use of radium and X-ray in fibroid tumors of the uterus and in uterine bleeding the diagnosis in a given case should be established beyond doubt before using X-ray or radium. So far as I know, the microscopic examination of the tissue removed by curettage is the only sure method for a positive diagnosis. It is true that some outstanding gynecologists both in this country and in Europe claim that carcinoma of the body of the uterus as well as carcinoma of the cervix is better treated by radium than by surgery; but, regardless of the treatment used, we should know whether malignancy exists and if so its type be determined before treatment is instituted.

An attempt to add anything new to the procedure of curettage is out of the question, but since specimens of endometrium continue coming to our laboratory wrapped in gauze, poorly preserved, mixed with blood and mucous, and in such minute quantities that we can give only a fragmentary report, I feel that insistence upon the adherence to some standard method of obtaining and preparing these specimens will greatly enhance the value of curettage, not only to the patient but to the physician. Where the

tissue is incompletely removed, possibly leaving the pathologic lesion in the uterus, or where it is incorporated in large blood clots or enmeshed with the gauze sponge, a histologic examination is worse than valueless,—it is misleading.

I am confident that if the steps laid down in the standard books such as Crossen,<sup>3</sup> Graves,<sup>4</sup> and Kelly,<sup>5</sup> are followed, the curette and the polyp forceps will remove tissue which will lead to a correct diagnosis in practically all cases. If that tissue is transferred as it is removed from the cervical os into normal saline solution or water, washed free from blood and mucous, and sent to the laboratory in 10 per cent formalin solution, accompanied by a clinical history of the case, then histologic examinations will increase in value. The establishment of a systematized technic based on the data that we have at our command and careful attention to details will eliminate discrepancies and seldom if ever leave us confronted with a malignancy that was overlooked.

16 So. 10th Street.

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#### DISCUSSION

DR. JOHN W. BARSON, Joplin: Many of our best men in doing a biopsy use the cautery only for cutting the tissue when there is suspicion of malignancy because of the danger of spreading the malignancy, if present. If you break a cancerous gland or cut through the malignant tumor you will spread the cancer cells through the tissue and get into serious trouble.

I remember one case in particular that I operated upon at the urgent demand of those who wanted something done for the patient. She had been under treatment by others for some time. We made a thorough dissection of the axilla and other parts but unfortunately the condition had progressed to a point where it was inoperable. In removing the mass of tissue several of the glands were broken and the cells scattered. We sewed up the wound, made a nice closure, and for three months thought we had a good result. Then we noticed carcinomatous tissue appearing everywhere throughout the field of operation. We cut out the cancerous nodules with the actual cautery and grafted autogenous tissue. In six months she was dead of cancer that involved all the upper part of the body, the grafted areas being the only parts free from cancer.

In curetting a uterus suspected of being cancerous you are on dangerous ground. In such a case I would want a pathologist on the ground to make a diagnosis *at once* so we could apply surgery quickly and get rid of the malignancy if possible. If you curette a cancerous uterus you will spread the malignancy in all directions.

DR. DUDLEY A. ROBNETT, in closing: I agree with the doctor that it would be ideal to have a competent pathologist present, able to prepare and interpret frozen sections, when one is doing curettage or any surgical procedure where malignancy may be suspected. This service, however, is not available for a great many men, and my point is that these men who must depend upon distant pathologists should collect and prepare their specimens so that a maximum benefit may be derived from them.

We cannot compare carcinoma of the body of the uterus to carcinoma of the breast, the lip, or the cervix. Carcinoma of the body of the uterus progresses slowly, and cases where it has existed for months or even years are cured by competent surgery. The average length of time in a certain clinic from the onset of the patient's symptoms until they presented themselves for treatment was five years and in spite of that delay 67 per cent were cured by hysterectomy. In curettage we are able to recognize our cervical growths, usually by inspection alone, leaving only the body of the uterus to contend with. Experience has proven that diagnostic curettage with competent histopathology is a safe and valuable procedure.

## LARYNGEAL TUBERCULOSIS

TREATMENT WITH WATER-COOLED MERCURY  
QUARTZ LAMP WITH LARYNGEAL APPLICATOR\*

### Preliminary Report

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AND

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The physician who studies and directs the treatment of pulmonary tuberculosis must constantly give attention to complications of the disease. This applies especially to members of the resident staffs of sanatoria. Laryngeal tuberculosis is one of the most frequent as well as one of the most serious complications of the disease. Routine laryngeal examinations at the Missouri State Sanatorium since October 1, 1928, show that twenty-one per cent of all the adult patients have laryngeal tuberculosis at the time of admission or develop the condition before discharge. The percentage is slightly higher in men than in women. Pain and dysphagia are often marked in laryngeal tuberculosis and influence the resistance to the pulmonary disease unfavorably because of limiting the intake of nourishment. The cough from the laryngeal irritation present in many cases interferes with the local and general rest which is so important in the treatment of pulmonary tuberculosis. Cases have been observed which had a severe toxemia from the throat lesions with only a slightly active pulmonary lesion. The hoarseness and aphonia often caused by the laryngeal disease are troublesome and dis-

\* Read at the 72nd Annual Meeting of the Missouri State Medical Association, Springfield, May 13-16, 1929.



couraging to the patient. These results of laryngeal tuberculosis are mentioned to emphasize the seriousness of the condition and to show that treatment is well worth while if the symptoms can be relieved and the lesions improved or healed.

It is often said that treatment of laryngeal tuberculosis is unnecessary because it is so dependent upon the pulmonary disease. We have not found this to be true as is shown by the fact that some cases show improvement of the pulmonary condition without improvement of the laryngeal disease and cases of laryngeal tuberculosis under treatment have shown improvement without alleviation of the pulmonary condition.

Missouri State Sanatorium February 1, 1928. We do not find this form of treatment described in the literature, and for this reason a preliminary report of our work is being made. Radiation of laryngeal lesions with the water-cooled mercury quartz lamp is much the same as with the air cooled. The difference is that with the water-cooled lamp a much shorter exposure is necessary because of the greater concentration of the ultraviolet rays and the light rays are more easily applied to the laryngeal lesion. The applicator is a right-angle, fused quartz rod. The long arm of the rod is attached to the burner, the angle of the rod is placed at the same location on the soft palate where a laryngeal mirror would be placed in

Table 1. *Patients Treated Since February 1, 1928*

	Male	Female	Total
Number of cases treated.....	35	42	77
Average number of treatments given per patient.....	25	31.1	28.3
Number of patients with apparently arrested laryngeal lesions.....	3	5	8
Number of patients with arrested or apparently arrested pulmonary disease.....	0	0	0
Number of patients with pulmonary improvement and no laryngeal improvement.....	0	0	0
Number of patients showing both pulmonary and laryngeal improvement.....	19	29	48
Number of patients showing improvement of laryngeal lesions without improvement of pulmonary condition.....	8	9	17
Number of patients with improvement and apparent arrest of laryngeal disease.....	32	37	69
Number of patients showing no improvement.....	3	5	8
Percentage of improvement and apparent arrest of laryngeal disease.....	91.4	88.1	89.6
Percentage unimproved .....	8.6	11.9	10.4

Table 2. *Pulmonary Diagnosis of Patients Treated*

	Minimal	Moderately advanced	Far advanced	Total
Sex				
Male	1	4	30	35
Female	0	4	38	42

Many different methods have been used in treating laryngeal tuberculosis. The numerous forms of treatment indicate that none are specific. These range from sprays, insufflations and gargles to radical surgical operations on the larynx. Pigments, such as formalin and lactic acid, have been of value according to Lockard<sup>1</sup> and others. Cauterization of the laryngeal lesions has given good results in many cases as reported by Greene,<sup>2</sup> Looper and Schneider,<sup>3</sup> but this requires expert manipulation of instruments. Local heliotherapy has been used and encouraging results reported by Mills and Forster<sup>4</sup> and others. Strandberg<sup>5</sup> reports marked improvement and arrest of laryngeal tuberculosis in the Finsen Institute by means of general carbon arc lamp baths. According to Jennings,<sup>6</sup> favorable results are being obtained at Glen Lake Sanatorium by the use of the air cooled mercury quartz lamp with laryngeal applicator. Of course, all agree that voice rest is important in the treatment of laryngeal tuberculosis but it is difficult to carry out completely.

The treatment of laryngeal tuberculosis with the water-cooled mercury quartz lamp with laryngeal applicator was begun by us at the

order to visualize the larynx. The short arm of the applicator directs the light rays to the laryngeal lesions.

The length of exposure when the treatment is first begun is ten seconds. The time is increased five seconds each treatment, if no marked reaction is shown, until a maximum of thirty to forty-five seconds is reached, depending upon the reaction to the ultraviolet rays. The treatments are given two or three times weekly, usually two times. The average number of treatments given each patient has been 28.3. The treatments have been given by us after visualizing the larynx in the laryngeal mirror, the light being directed as nearly as possible upon the diseased portion of the larynx.

Dysphagia has almost always been lessened or completely relieved. We feel that our efforts have been worth while because of the relief given from this symptom alone. Some relief from painful deglutition is usually experienced after the first three or four treatments, although some patients with extensive laryngeal and pharyngeal lesions have not obtained marked relief until after ten or twelve treatments. One patient with a marked dysphagia was very sensitive to the ultraviolet light rays, an exposure of only ten seconds causing marked reaction. Needless to say, the laryngeal condition showed no improvement. This is the only case that showed no decrease of pain or complete relief from it. The treatment has been effective in decreasing the laryngeal

irritation and cough due to the laryngeal lesion. The general condition often begins to improve with the beginning of treatment, especially in cases of extensive laryngeal involvement with the pulmonary disease comparatively inactive. Fever is lowered, the patient takes on weight and gains in strength. In many cases the improvement has been due to the relief of dysphagia thus allowing the patient to take nourishment more freely, but it has occurred where the dysphagia was not present. Hoarseness and aphonia when present have been decreased or completely relieved, but usually a large number of treatments are required.

Improvement of the laryngeal lesions has corresponded closely to symptomatic improvement. However, relief from dysphagia is often obtained before there is a visible improvement in the laryngeal lesions. This is especially true of extralaryngeal lesions, such as ulcerations and infiltrations of the epiglottis, tonsils, pillars and posterior pharyngeal wall. The lesions have improved or become arrested under treatment but more exposures are required.

We know of no definite contraindications. However, treatments are not usually given to patients with a marked elevation of temperature unless they have pain and the dysphagia interferes with taking nourishment. Syphilis or, rather, a positive Wassermann has not proven a contraindication. Two patients with this combination have been treated and both improved, one showing an apparent arrest of the laryngeal lesions. Neither one showed evidence of syphilitic lesions of the larynx. Another patient who had a positive Wassermann showed no improvement in the laryngeal condition but there was a history of two years of hoarseness and we were of the opinion that there were syphilitic lesions in the larynx in addition to the tuberculous lesions. As mentioned above, one patient was encountered whose larynx was hypersensitive to the ultraviolet rays. It did not seem possible to give exposures short enough to prevent a severe reaction.

Seventy-seven cases have been treated, thirty-five males and forty-two females. Three males and five females showed what we term an apparent arrest of the laryngeal disease. Some of the cases had extensive involvement when the treatment was begun. All cases classified as apparently arrested have been free from ulcerations for three months or more. The infiltrations have greatly decreased and the tissues of the larynx have assumed a more healthy appearance. There have been no arrested or apparently arrested cases of pulmonary disease in the series. There has never been improvement of the pulmonary condition without improvement of the laryngeal lesions

also. Nineteen males and twenty-eight females showed improvement of both pulmonary and laryngeal disease. Of course it is possible that some of them would have shown improvement of the laryngeal disease without treatment. However, two patients were observed for six months before laryngeal treatments were begun and improvement of the pulmonary disease was shown with practically no change in the laryngeal lesions. Laryngeal treatments were then begun with marked improvement in the laryngeal lesions and hoarseness of long standing disappeared. Eight males and nine females showed improvement of the laryngeal disease with a progression of the pulmonary lesions. We think the improvement in this group has been largely due to the treatment. Eight cases showed no improvement in laryngeal conditions. Practically all of these were terminal cases with a severe productive cough. Sixty-eight out of the seventy-seven cases in the group, or 89.6 per cent, have been definitely helped by the treatments.

#### SUMMARY AND CONCLUSIONS

1. Tuberculous laryngitis is a frequent and serious complication of pulmonary tuberculosis.
2. Treatment of laryngeal tuberculosis is worth while if the symptoms of the disease can be relieved and the character of the lesions improved.
3. The water-cooled mercury quartz lamp with laryngeal applicator has been used by us in the treatment of seventy-seven cases of laryngeal tuberculosis.
4. Eighty-nine and six-tenths per cent of cases treated have shown improvement or apparent arrest.
5. Practically uniform relief from pain and dysphagia has been given by the treatments.
6. We feel that this is the most effective method of applying ultraviolet light to tuberculous lesions of the larynx and that the treatment is justified if for no other reason than affording symptomatic relief.

#### CASE REPORTS

Case 1. M. B., female, aged 37. Admitted August 3, 1927, with a history of onset of pulmonary disease December 1, 1926. Symptoms were productive cough, pleurisy, loss of weight and hoarseness. The hoarseness began June 1, 1927. Pulmonary diagnosis, tuberculosis far advanced (C). Laryngeal examination showed extensive infiltration of the ventricular bands and enlargement of the arytenoids. Cords ulcerated throughout their length. Dysphagia not marked. Patient placed on complete bed rest and voice rest. General condition showed marked improvement; pulmonary condition improved as shown by physical and X-ray examination. Laryngeal condition remained much the same. February 1, 1928, treatments with the water-cooled ultraviolet lamp with laryngeal applicator begun. Improvement in laryngeal lesions soon seen and hoarseness



lessened. Three months after beginning treatments voice almost normal and no ulcerations in larynx. Infiltrations greatly decreased. Patient discharged October 27, 1928, sixty-five treatments having been given. Voice clear and only slight infiltrations remained in the ventricular bands. Patient not seen again but reports she sends indicate no return of the laryngeal disease. This case illustrates the statement made above, that treatment of laryngeal tuberculosis is not so dependent on the pulmonary disease as is generally thought.

Case 2. H. A., female, aged 21. Admitted September 12, 1928, with history of onset of pulmonary tuberculosis in June, 1927. Became hoarse in September, 1927, the hoarseness persisting until admitted to this institution. Had been on rest cure in a Western state for one year previous to admission. Pulmonary diagnosis, tuberculosis far advanced (B), a moderately dense infiltration in upper half of right and light infiltration in upper half of left. Much evidence of fibrosis in both lungs. Rales present only in right upper anterior. Laryngeal examination showed marked interarytenoid infiltration. Cords enlarged and covered with exudate. (At later examination ulcers were seen on posterior ends of cords.) Ventricular bands showed marked infiltration. Treatments with the water-cooled mercury lamp with laryngeal applicator were begun. After twelve treatments hoarseness decreased. Four months after beginning treatment voice was practically normal, infiltration greatly reduced. At this time, nine months after beginning treatment, sixty treatments have been given. Her voice has remained normal and there remains only a moderate infiltration of left cord. Pulmonary condition classified as improved but improvement not marked.

Missouri State Sanatorium.

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## THE JUVENILE TYPE OF TUBERCULOSIS\*

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*Author's note: Since this paper was written, the American Sanatorium Association has adopted the following definition: "Childhood type of tuberculosis is the term used to describe the diffuse, or nodular, lesions in the lungs and associated tracheobronchial nodes that result from a first infection of the pulmonary tissue with the tubercle bacillus." This broadens somewhat the pathological conception as described in this paper.*

Childhood tuberculosis, variously designated as hilum, tracheobronchial, or the juvenile type of tuberculosis, may be regarded as the pre-

clinical stage in the development of pulmonary tuberculosis. Yet its pathological picture is so different from that of the adult or pulmonary type that it merits consideration as a pathological and clinical entity. It is of significance chiefly because of its prognostic value and because, if recognized, the disaster of pulmonary tuberculosis may be prevented. While the early discovery of pulmonary tuberculosis usually promises a good prognosis, by the time this is possible through the usual signs elicited by percussion and auscultation and the interpretation of symptoms, the disease is already firmly entrenched. Early discovery is good, but anticipation of actual disease, through an understanding of the manner in which tuberculosis develops biologically, is better.

Mortality rates tabulated according to age

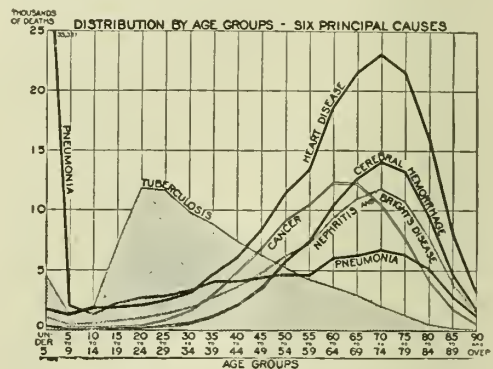


Fig. 1. Mortality rates of six leading causes of death compared by age.

groups (Fig. 1) give the impression that tuberculosis is an adult disease. During childhood mortality is low; the curve rises sharply during the late teens, reaches its peak in the decade 20-30, and continues high throughout adult life. The mortality curve, however, pictures the harvest; the seed time of this slowly developing disease is many years earlier. Considered from a preventive standpoint, tuberculosis is a disease of childhood.

Tuberculosis, "the malady of protean forms," runs no uniform course, but a general picture of the evolution of the disease may be described as follows: A child is born free from tubercle bacilli and also lacking in any specific natural immunity against them. With the first invasion of tubercle bacilli there is called forth a reaction of body cells similar to that engendered by the invasion of a foreign body, i. e., the bacilli are surrounded by a wall of connective tissue. The immediate outcome of the first invasion depends largely upon the dosage of the bacilli; if massive the encounter is likely to be a short and fatal one, but if the dosage is not too large a well defined tubercle results. This first or primary tubercle locates usually at the periphery of the lung, as the infecting

\* Read at the 72nd Annual Meeting of the Missouri State Medical Association, Springfield, May 13-16, 1929.



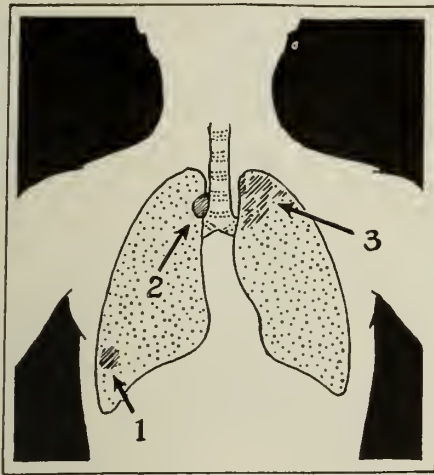


Fig. 2. Schematic diagram illustrating the development of pulmonary tuberculosis. (1) Primary tubercle. (2) Infected tracheobronchial lymph node. (3) Apical involvement. (1 and 2 are lesions of the childhood type of tuberculosis; 3 is characteristic of the adult type.)

bacilli tend to lodge in the lymphoid tissue of a primary lobule, the unit of the lung.

As a result of this first skirmish the entire body becomes sensitized, or allergic, so that when in the future other tubercle bacilli enter the lungs the protective reaction which is expressed in tubercle formation is more responsive. Thus, many persons pass through childhood receiving repeated infections, but resistance maintains the upper hand so successfully that the disease, pulmonary tuberculosis, never develops.

From the original infection, whether that has actually resulted in the formation of a tubercle or not, the bacilli extend to and are under favorable circumstances intercepted by the lymph glands situated at the hilum, or root, of the lung.\* But in the process of preventing local infection from spreading generally the glands which drain the infected lung area are likely themselves to become infected. Probably this occurs most frequently when the primary tubercle is being formed, at which time the responsiveness of the cells has not yet been fully activated. Subsequently, say in the late adolescent or early adult period, tuberculosis may develop in the lung substance, the apex of the right lung being the favorite site. Then the disease is designated as the adult type and may run the usual course of pulmonary tuberculosis. Opie regards this stage of the disease as a secondary infection (not an extension of the infection from the lymph glands but a new infection superimposed upon the old) but admits that "tracheobronchial tuberculosis in children has grave significance and may serve as an index of manifest disease." A sharp line be-

tween the juvenile type and the adult type cannot be drawn but, generally speaking, juvenile tuberculosis may be regarded as that stage in which there are isolated nodules, infected lymph nodes, or both, while the adult type is that in which the parenchyma of the lung itself is involved.

#### ETIOLOGIC FACTORS

Underweight has long been regarded as a predisposing factor in the development of tuberculosis. Those workers, however, who have examined large numbers of school children (Chadwick, 42,000; McCain, 25,000; Hetherington, 2,000, and others) conclude that the juvenile type occurs just as frequently in children who are of average weight or overweight as in those who are underweight. Underweight is usually due to some underlying cause of which tuberculosis may be one but as an etiological factor it is of slight significance. Tuberculin tests of city and rural children indicate that positive reactions are somewhat higher among city children than among those of rural districts, and higher among negroes than whites; in other words, the incidence follows in general the same ratio as the incidence of adult tuberculosis.

The one factor which seems to determine more than any other whether a child will develop a severe infection is the massiveness of the dose. A child who is exposed to large doses of tubercle bacilli or to smaller doses at repeated intervals is in jeopardy. Where are the opportunities for exposure to massive doses greatest? In the home where an adult member of the family has tuberculosis with bacilli in the sputum!

#### PREVALENCE

Chadwick, in routine examinations of thousands of school children in Massachusetts, diagnosed positive juvenile tuberculosis in  $1\frac{1}{2}$  per cent, and in  $3\frac{1}{2}$  per cent the X-ray evidence was suspicious. McCain, who examined almost as many in North Carolina, found slightly less than 2 per cent with demonstrable lesions. Figures reported by other investigators do not vary much from these. When, however, the incidence of juvenile tuberculosis is calculated among children of contact and those of non-contact families, the figures are more striking. Opie and McPhedran, who studied groups of contact and non-contact families in the less favored residential districts of Philadelphia, found that among the former 60 per cent of the children between 10 and 15 years of age showed definite tuberculous lesions, while among non-contacts only 10 per cent of the children of the same age group showed such

\* Miller has shown that the valves in the lymph vessels of the organ permit flow only toward the lymph nodes.

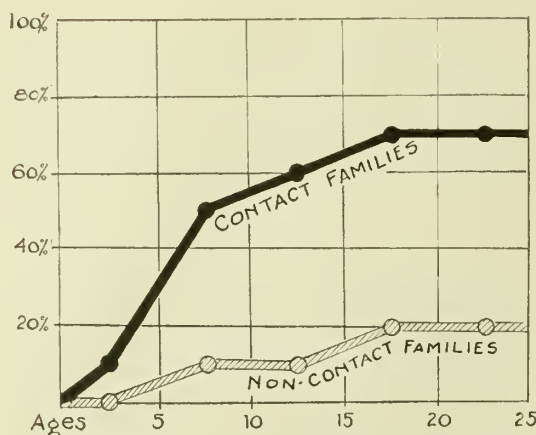


Fig. 3. Tuberculous lesions revealed by X-ray among children of contact and non-contact families in Philadelphia.

lesions.\*\* (Fig. 3.) Rathbun has calculated from his studies of children in rural districts that the opportunity for acquiring tuberculosis is about nine times as great among children of contact families as among children of non-contact families.

#### SYMPTOMS AND PHYSICAL SIGNS

The symptoms of juvenile tuberculosis are vague and unsatisfactory; none are characteristic. The pathology at this time is of such a nature that there are likely to be no symptoms. There may be evidences of malnutrition or signs of slightly subnormal health. Fever may be present but it follows no characteristic curve. There may be frequent colds, but cough is not common and when it does occur it is likely to be unproductive. The child may be languid and easily fatigued.

The physical signs, of which d'Espine's sign is one, are also of slight value if not actually misleading. Anemia, flabby musculature, and other evidences of below par health may be present. The sputum is bacillus free. In short, the ordinary physical examination will not reveal juvenile tuberculosis. There is, indeed, justification for speaking of the condition as a "latent" or concealed form of tuberculosis as distinguished from the "manifest" form of pulmonary tuberculosis. The chief value of the physical examination is that it serves to exclude other conditions which might give rise to the symptoms.

Reliance must, therefore, be placed on two procedures, both of great value, one being the tuberculin test and the other the X-ray photograph. The tuberculin test simply indicates whether or not tubercle bacilli have lodged in the body. The von Pirquet test is most commonly used today, for while it is not as sensi-

tive as the intracutaneous method it is more easily applied. A negative reaction excludes tuberculous infection. McCain, in his routine examinations of over 25,000 school children, found that almost 23 per cent of the children reacted positively. This is somewhat lower than Chadwick's findings, who, in his examinations of 42,000 children, reports 21 per cent positive reactions at age 5, 28 per cent at age 10, and 35 per cent at age 15, the average for the whole group being 28 per cent.

By means of the X-ray it is possible to demonstrate calcified nodules and lymph nodes. In order to establish a "base line," or the X-ray appearance of the normal child's chest, a group of roentgenologists, including Pancoast, Dunham and Baetjer, studied the chests of 500 children. For purposes of convenience they recommend that the chest area be divided into three vertical zones: zone 1 contains the root shadows; zone 2 the trunk shadows, gradually fading out into their final subdivisions; and zone 3 radiating lines from these and shading

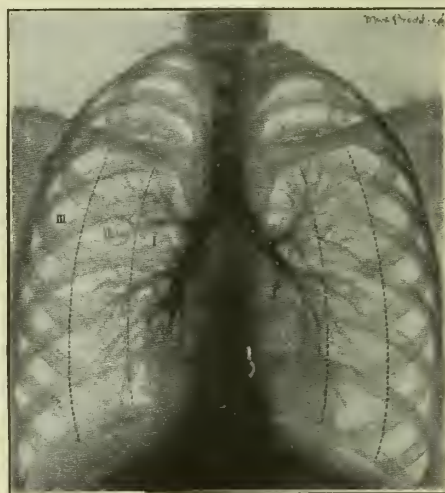


Fig. 4. Composite drawing based on X-ray pictures of the chests of 500 normal children.

off before the periphery is reached. (Fig. 4.) The conglomerate shadow, commonly called the hilum shadow, when found lying entirely within zone 1, may be regarded as normal except where it is made up of a solid mass of homogeneous shadow giving undoubted evidence that it represents a growth or mediastinal pleurisy. Calcified nodes at the root of the lung without evidence of lung disease are of no significance except as a possible evidence of some healed inflammatory condition, possibly but not necessarily tuberculous. Where in zones 2 and 3 normal shadows do not gradually fade out, the appearance may be due to a variety of conditions of an inflammatory nature or otherwise; it may accompany a tuberculous

\*\* Chadwick has found that exceptional cases hasten to an unhappy outcome in spite of all treatment.



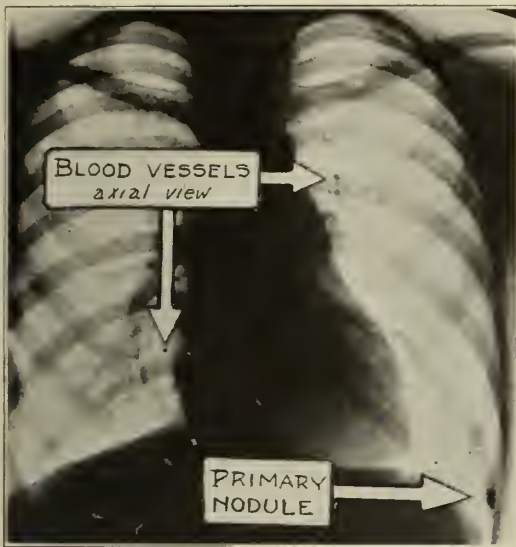


Fig. 5. X-ray of child's chest showing primary nodule without tracheobronchial lymph node involvement.

process but is not necessarily indicative of tuberculosis. Calcified lesions cast characteristic shadows. The primary lesion, if calcified, may often be found near the surface of the lung and may vary in size from a grain of rice to a large cherry. (Fig. 5.) The shape and density are determined by the extent of the involvement and the amount of calcium. Tracheobronchial lymph nodes are usually larger, may be of any shape or degree of density and often appear stippled.

Before the appearance of the normal chest was established mistakes in diagnosis were often made by reason of the fact that arteries or air vessels photographed "head on" or in

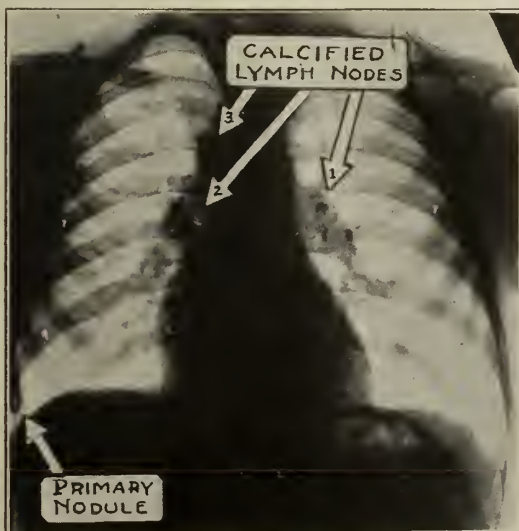


Fig. 6. X-ray of child's chest showing primary nodule and calcified lymph nodes.

the long diameter often cast shadows on the plate simulating tubercles. If the patient is slightly rotated so that the rays penetrate at a different angle such shadows disappear, whereas if they are due to tubercles they persist. Sometimes shadows of calcified nodes may be concealed by the spine, heart or large blood vessels. (Fig. 6.) This error of omission may be avoided by taking the picture with the chest in an oblique position.

Fig. 7 brings out several points alluded to in this discussion. In the left fifth interspace of the illustration and touching the upper margin of the sixth rib near the posterior axillary line

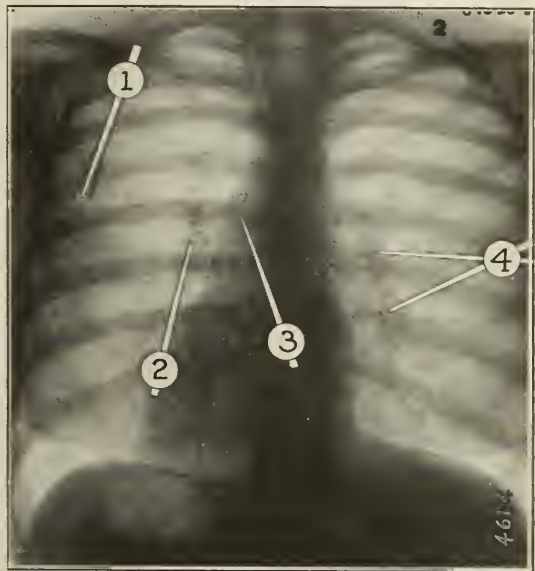


Fig. 7. Peripheral nodule with tracheobronchial calcification.

is an irregular calcified nodule (1). Upon the shadow of the left arterial main stem at the level of the sixth rib and interspace is a faint irregular calcium shadow (2), and another, irregularly club-shaped, lies mesially on the aortic curve at the sixth rib (3). The homogeneous densities on the right at the levels of the seventh and eighth ribs and in the ninth interspace are due to blood vessels, axially radiated (4). This child reacted to .01 mgm. Old Tuberculin.† She was discovered in an investigation of school children. (Roentgenograph and interpretation by Dr. F. M. McPhedran, of Henry Phipps Institute.)

#### DIAGNOSIS

The diagnosis of the juvenile type of tuberculosis demands consideration of the following factors:

1. History: Contact, especially contact with

† For the intracutaneous test Koch's Old Tuberculin of from .01 to 1 mgm., diluted in 1 cc. normal salt solution, is generally used. If the smallest dose is negative the test may be repeated in larger dosage.

a member of the family who has tuberculosis, is of particular importance.

2. Symptoms may be entirely absent, though fever, lassitude, anemia and underweight should arrest attention.

3. Physical signs may be entirely negative.

4. The tuberculin test must be positive.

5. X-ray must reveal shadows of enlarged lymph nodes, isolated lesions in the parenchyma, diffuse shadows at the hilum, or linear markings from the hilum.

6. Nontuberculous conditions, such as diseased tonsils, sinusitis, etc., must be excluded.

*The tuberculin test determines infection; X-ray shadows demonstrate the lesions.*

#### TREATMENT

The child with juvenile tuberculosis should be regarded as being in the pretuberculous stage, or a potential case of pulmonary tuberculosis. In order to prevent this catastrophe the following requirements should be met:

1. Breaking the contact; that is, shielding the child from repeated exposure to tubercle bacilli. This is accomplished by removing the adult in the family who has the disease to a sanatorium, or instructing him how to prevent the dissemination of bacilli, or, if both of these expedients are impossible, removing the child from the home.

2. Correcting all physical defects, such as diseased tonsils, bad teeth and the like, in order

to give the resisting powers of the body every chance.

3. Shielding the child from strain, which implies a reduced school curriculum and supervision of its play so that he shall not overstrain in competing with more robust playmates. Prevention of strain demands also long hours of sleep and rest periods morning and afternoon.

4. Good nutrition; that is, seeing that the dietary habits of the child and the foods served to it are conducive to good nutrition.

5. Training the child in health habits so that he will develop a healthy body and resist every impulse to overstrain.

6. Adjusting the psychology of the child, which implies that the child or at least his parents should be made aware of the fact that, while the child is not definitely ill, he is threatened with a serious handicap. Care must be exercised not to implant in the child's mind the idea that he is "inferior," or a chronic invalid, but he must be impressed at the same time with the need of always avoiding strain.

These requirements are well met by the preventorium, which in its ideal form is a school where the child stays 24 hours of the day and which is operated throughout the year. Meanwhile, follow-up work is extended into the home with a view to securing the full cooperation of the parents. Other forms of preventorium treatment are undergoing experimentation in various parts of the country. The child of a family where intelligence and cooperation can be depended upon may well be cared for at home, but no doubt there are many "problem" families in which happy results cannot be achieved, in which case some kind of institutional care may be desirable.

#### PROGNOSIS AND SIGNIFICANCE

Discussion of prognosis has been deliberately left to the last for the reason that juvenile tuberculosis is of interest primarily because it enables us to forecast pulmonary tuberculosis. Per se and for the immediate present, juvenile tuberculosis seen in children of school age is not dangerous save in the relatively rare accident in which an infected lymph node ruptures and discharges its contents of tubercle bacilli into a large blood vessel or air passage. It is the adult type which kills and juvenile tuberculosis is its forerunner. Proper treatment instituted during the early stage gives promise of preventing a catastrophe in adult life. Precisely what percentage of juvenile cases will actually eventuate into the pulmonary type has not been and will not be determined until several years of observation have elapsed. But every case should be regarded as a potential



Fig. 8. Portable desk used at Springfield Lake Sanatorium, Akron, Ohio.



consumptive and should be under observation until the age of 20 or later. Certainly, leading clinicians agree that the diagnosis of juvenile tuberculosis means that the child has been severely infected, by reason of which fact it is threatened with the disease, pulmonary tuberculosis.

The practice of medicine is tending to concern itself more and more with prevention rather than with the salvaging of damaged goods. Discovering juvenile tuberculosis is equivalent to anticipating the more fatal form. Realizing that the child from a contact family is in greatest danger, it seems obvious that tuberculosis should be regarded as a family disease and that, whenever a case is discovered, in whatever stage, every member of the household should be carefully scrutinized and the examination of children should include the tuberculin test and an X-ray photograph. The peculiar significance of juvenile tuberculosis is that it enables us to search out with a degree of precision the candidates for pulmonary tuberculosis and, having searched them out, to institute the simple hygienic measures which will tend to prevent the development of the disease and possibly death at a time when life is sweetest and when that member of society can least be spared.

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### EARLY DIAGNOSIS OF TUBERCULOSIS IN CHILDREN\*

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In an analysis of admissions to the children's service of any hospital it is surprising to find the number that are tuberculous; furthermore, it is amazing to find the percentage of mortality from acute or active tuberculosis in children.

From December, 1926, to January, 1928, Levinson,<sup>1</sup> at Cook County Hospital, gave special attention to the active cases of tuberculosis. As a result of his study we have the following figures: 1562 patients admitted to the pediatric service. Of these 119, or 7.61 per cent, had active tuberculosis; 92 of the 119,

or 78 per cent, died; in the remaining 27 the prognosis in one half was bad.

This series is chosen because it is recent, it is not too far from home, it is typical and coming as it does from a general pediatric and not from a strictly tuberculous service represents what any one dealing with children is apt to encounter.

In a study of some fifty cases of crippled children<sup>2</sup> where tuberculosis was the etiological factor, that is, hip joint disease, Pott's disease and tuberculous osteomyelitis, in not a case was the chest free from some previous tuberculous infection.

In a noted series of autopsies<sup>3</sup> done on tuberculous children 95 per cent showed primary infection in the lung and in 100 per cent the bronchial glands showed infection.

In an exhaustive study by Still the mode of infection was by the inhalatory route in more than 71 per cent.

These facts lead us to the conclusion that tuberculosis in children is primarily thoracic. A closer study of the pathological process indicates very early involvement of the thoracic glandular system.

The infective agent, the tubercle bacillus, being deposited upon a mucous surface, is picked up by the polynuclear leukocytes and carried into the deeper structures where it acts as a foreign body because of its high resistance to digestion. Here through the gathering of the leukocytes and the stimulating of new and pathological tissue the primary tubercle is formed. Here is formed the toxin to give temperature reaction, to produce tuberculosis allergy which is the underlying factor in the skin test for the disease, to stimulate the lymphatic chains, both in size and consistency,—the latter so definite that the changes may be made out by certain physical signs and by the shadows cast upon the X-ray plates.

From the study of tuberculous conditions in children I am convinced that the finding of bronchial, tracheobronchial, and mediastinal glands and determining whether or not tuberculosis is the etiologic factor, form the key to the early diagnosis of tuberculosis in childhood.

The presence of bronchial glands is determined by the physical examination. On inspection the chest may be flat or full but over the surface are often seen prominent tortuous veins. Palpation gives no hint of the condition. Percussion may give some information, such as increased dullness along the dorsal vertebrae but the glands lie snugly under the inflated lung, and unless the glands are unusually prominent and the percussor an expert, little will be found. Auscultation will give more information than any other procedure. On auscultating a child's chest several facts

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are to be remembered. First, absolute quiet is essential; second, a stethoscope with a small bell without an intensifying diaphragm is needed. Through the ordinary Bowles stethoscope sounds far removed from the area auscultated are picked up; third, the type of breathing and the anatomical marking for the age of the child and the difference from the adult must ever be kept in mind.

With enlarged bronchial glands the following auscultatory signs are found: (1) Prolonged expiratory murmur in which expiration is soft, equaling in quality the inspiratory, with no harshness, oftentimes fully as long. The expiratory is sometimes almost sighing in character. The cause is increased density of lung plus a thin thoracic wall which allow transmission of sounds not otherwise heard. Impingements on bronchi probably cause a longer time for expiration to occur. (2) Eustace Smith's sign. The pulmonary murmur or venous hum heard over the second interspace just to the right of the sternum when the great vessels are put on the stretch by having the sitting child look at ceiling directly over head. (3) D'Espine's sign. The transmission of the whispered voice to the area over the spinous processes lower than normally heard for the age of the child. (4) An increased area over which the second pulmonic heart sound is heard.

Normally the second pulmonic is heard over a circumscribed area in the second interspace at the right of the sternum. The timber or quality of the sound (with a normal heart) is not accentuated. When this area over which the second pulmonic is heard is increased to the size of the patient's hand and the tone is accentuated out of proportion to other heart sounds I ascribe it to a condition that causes increased sound transmission,—in children increased lymphatic tissue. The physical findings are then checked up with X-ray plates.

The diagnosis of enlarged bronchial glands having been arrived at, the question then arises "Is tuberculosis the etiological factor?" The decision is made upon the history, temperature observations, skin tests, minute scrutiny of the X-ray plates and a study of the individual child. In the history the essential point is that of contact. Other members of the immediate family, grandparents, uncles, aunts, close friends and servants past as well as present come in for close inspection. A history of close contact almost establishes the diagnosis.

An afternoon daily temperature up to 100° F. is most suspicious especially when tonsil, dental, gastro-intestinal, and genitourinary infections can safely be ruled out.

Skin tests with Koch Old Tuberculin intradermally with suitable dilutions, 1/1000, 1/500, 1/100, establish the diagnosis if positive. Too much weight is not to be given to

negative skin tests, especially if single tests or single dilutions are used. Dependence on X-ray plates for etiological factors of the increased shadows is not wise but if upon careful scrutiny a calcified area is found it is fair to assume that there has been and probably still is some tuberculous activity.

The patient is usually under weight, often falling into the class of malnutrition, fatigues easily, with history of frequent attacks of indigestion.

Sputum examinations are usually negative since we are dealing with early cases.

Just a word as to treatment. Rest in bed in the open air until weight approaches the normal and the afternoon temperature 99° or less. A well balanced diet with some excess of protein at the expense of the fat content. All the sunshine available with ultraviolet therapy during the winter months.

In connection with this paper I desire to comment on a series of thirty cases of early tuberculosis followed over a period of five years: Of these 30 cases, 2 have died of meningitis (tuberculous); 1 has died of miliary tuberculosis; 1 spent a year in hospital with a tuberculous hip; 1 has active tuberculosis and will probably die soon; 2 have passed from personal observation but reports received are favorable. The remaining 23 are well and apparently free from tuberculous infection.

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## THE GREATEST PROBLEM OF THE INTERNIST\*

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The greatest single problem of the general practitioner of internal medicine today is the chronic invalid who has no organic disease,—the neurotic patient, if you prefer to say it that way, or the psychoneurotic patient. Personally, I do not like either of those terms because they have meanings for the medical profession which cause physicians to judge the patient incorrectly. The patients do not have diseases of the nervous system, as the word "neurosis" implies, nor exactly of the mind. They are disorders of the patient's whole life, or personality disorders. They make the most important problem of the internist in my opinion for three reasons:

First, because these patients constitute the

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largest single group, numerically, the internist sees. I said to a prominent internist once that I believed at least 50 per cent of the patients I saw suffered from a psychoneurosis. His only reply was "80 per cent." Nor is the internist the only consultant, I am convinced, who sees these patients in large numbers. The general surgeon certainly must meet many of them. The nose and throat men, I am convinced, deal more with them than they ever realize. The neurologist does not see them very much, strange to say, because the psychoses sent to him usually are so definitely across the borderland of the abnormal as to be an entirely different kind of case. Only pediatricians and obstetricians have a minimal percentage of these patients in their practice. Of course if the obstetrician is also a gynecologist 90 per cent of his patients are in this group. In other words, most of us see very little organic disease. If such is the case the very commonness of the condition justifies my contention that it is our greatest problem.

Second, it is the greatest problem of the internist because we treat these patients so very, very badly. I want to dwell on this a little, not in a spirit of criticism although some criticism is inevitable, but in the hope that an examination of the facts in all their starkness may bring about a better understanding of the situation. I should like to illustrate it simply by recounting a clinic I saw last year given by one of the foremost internists of America. He had only one patient and the clinic was largely a conversation, the physician asking the patient questions. More or less accurately I reproduce it:

"How long have you been sick, Mrs. A?" Ans. "Ten years."

"When you came to me six months ago what was the matter?" Ans. "Stomach trouble."

"But you had something else before that, didn't you?" Ans. "Yes, colon trouble; then before that pelvic symptoms, then my nose bothered me before that,—I had some of all these things when I came to you but my principal trouble was in the stomach."

"Do you remember what you had at first, at the beginning of your illness?" Ans. "Yes, fatigue and afternoon fever and sweating."

"How many physicians did you consult during the period of your illness?" Ans. "Oh! It's hard to remember,—between twenty and thirty."

"Were they all good men or did you go around among irregular practitioners much?" Ans. "All but three were graduates of Harvard Medical School or Johns Hopkins Medical School, one out west was a graduate of Rush Medical School."

"How many operations did you have in this time?" Ans. "Counting teeth pulling and operations on the nose, seven. Appendix out, tonsils out, ventrosuspension."

"Did you get much relief from these?" Ans. "So far as I can see none of them did me any good at all."

"How many X-rays of your chest were made?" Ans. "About thirty."

"Why did you have so many taken?" Ans. "Well, they all thought my fever meant tuberculosis and when I said I already had an X-ray of my chest, they would say that they wanted a very accurate one and didn't trust the others, so a new one was made."

"How many basal metabolic rates were measured on you?" Ans. "Twelve, I think."

"What did they show?" Ans. "They were all normal. But every time I told a doctor that he would say they had not been done accurately and wanted another."

"Did anything else happen to you during this period?" Ans. "Yes, I was sent to a sanatorium for tuberculosis for a year. And I was advised I could never live at sea level on account of my nose."

"What did I do when you first came to me for advice?" Ans. "You talked to me for over two hours."

"What do you think has been the matter with you?" Ans. "Fear, which started after the influenza epidemic when my sister died."

"The other doctors did not seem to think your sister's death had any significance, I take it?" Ans. "None of them even asked me about it,—they were too busy doing things to me that lay in their own fields."

Why did such a situation arise? How does it happen that this patient could go to so many well trained men and be so badly treated?

For several reasons. First, I think, because such patients are almost never shown to students during their course in medical school. The professor picks out a case to demonstrate which is either a classic example of an organic disease or is an obscure case which requires great astuteness to disentangle the diagnosis, but that diagnosis is inevitably of an organic disease. The largest part of the discussion on any case is about organic pathology or therapy. The neurologist in presenting psychoneuroses also usually selects some dramatic example of a definite and marked phobia or obsession.

These cases of which I speak, because they do not lend themselves to any very theatrical presentation, the student simply never sees. He leaves school and hospital with the fixed idea that every case has an organic basis if only he is clever enough to discover it. All his training is materialistic. He may never wake up to the fact that most of his patients have no material cause for their symptoms.

Thus many practitioners, on account of these patients, fall into fads. A fad is a way of escape for the practitioner. With his fad he can explain the neurotic patient. The fad has a certain plausibility. But the fad is the destruction of the physician's soul. Fads are, very properly too, the reason we are ridiculed by the public and our colleagues. And for that reason if for no other,—the danger of dropping into fads,—this is the greatest problem of the internist.

Let us enumerate some of these fads. Let us start and examine some of the fads of the



past. These fads are all dead. We know they were based on false theses. But their enumeration will allow us to get perspective on the fads of our own time.

1. *Scabies*.—In the time of Napoleon scabies was being exploited. The profession of Paris was proclaiming that half the diseases of the world were due to the itch somewhere in the body.

2. *Gout*.—For many years all headaches were gouty, all dyspepsia was gouty, etc.

3. *Uric Acid*.—It caused, forty years ago, Bright's disease, rheumatism, headaches, fatigue, dyspepsia, etc.

4. *Floating Kidney*.—Time was when the best surgeons anchored kidneys galore.

5. *Ovarian Cysts*.—Time was when normal ovaries were removed by the thousands from neurasthenic women because the ovaries had unruptured Graafian follicles.

6. *Malaria*.—Time was when everybody who had fatigue and lassitude was given enormous doses of quinine on the ground that they had hidden malaria.

7. *Indicanuria*.—Time was when learned treatises were read to prove that the presence of indican in the urine indicated chronic intestinal poisoning.

8. *Eye Strain*.—Dr. George M. Gould made the claim that headaches, indigestion, fatigue, etc., were caused by astigmatism.

9. *Intestinal Stasis*.—About 1911 I reviewed a book by Mr. Arbuthnot Lane which was being discussed seriously by the profession and which claimed that neurasthenia, exophthalmic goiter, migraine, ulcer of the stomach, gallstones, cancer of the breast, pulmonary tuberculosis, high blood pressure, and many other diseases, were caused by absorption from the colon.

Such were the fads of yesteryear. Are there any ideas widely employed by men today which attempt to explain large numbers of patients? I suggest a few:

1. Focal infection.
2. Endocrine disturbances.
3. Chronic appendicitis.
4. Allergy, food poisoning, etc.
5. Ileocecal regurgitation.
6. Masked tuberculosis.
7. Abdominal migraine.
8. Colitis.
9. Ureteral kinking.
10. Hunner's ulcer.
11. The Oedipus complex, the Electra complex and the inferiority complex.
12. Intercostal neuralgia.

It is not meant that none of these have any basis in reality. Focal infection occurs and

causes some pathologic tissue changes; endocrine imbalance occurs. Allergy is a real entity. But what I do mean is that it is very convenient to use these things to explain any sort of a clinical puzzle. It is convenient for several reasons. First, because you can in nearly every patient set up the diagnosis; in nearly every patient sufficient signs can be found to establish the diagnosis of any of the things just enumerated. In fact, a practitioner established in a city outside of Missouri, in a Puckish mood, sent one man around to four of his friends and on the basis of the physical examination the same patient had four diagnoses, —infected teeth, hypersensitiveness to wheat protein, hypopituitarism and chronic appendicitis.

Then these formulas are convenient because they satisfy both the physician and the patient. Something has been found. The patient is on a materialistic basis. Also it is an easy way out. The practitioner can do something definite, obtain a fee and get rid of his patient. There is no tortured unraveling of a snarled clinical problem.

We get into these habits of thought very gradually and unconsciously. We do not see ourselves. We smile at the other fellow's fad but not at our own. Fads cause doctors to lose their souls and like every other form of soul-losing we are in the coils before we know it.

Third, this is the most important problem of the internist because the public levels more criticism at us for what we do to these patients than for any other one thing. They go from us to osteopaths and Christian Scientists or become cynical about therapeutics of any kind largely on account of experiences such as I have related above.

What is the solution of this greatest problem of the internist?

Primarily, to obtain a better understanding of these patients. To do this of course we must begin to show them to medical students. They must be shown as examples of functional disease simulating organic disease. They should be shown by every department but particularly by the department of general medicine.

In understanding this kind of patient we must get a clear view. He or she does not come to you with the ordinary marks of a neurosis. The outstanding thing is that these patients complain of symptoms which sound like organic disease. They do not complain of melancholia or inability to decide which shoe to put on first, or sudden fears which send them running to the doctor's office, or spells of drunkenness or sexual perversions, or conduct

disorders. They complain of headache, and dyspepsia, and constipation, and backache, and dysuria, and dysmenorrhea, and fatigue, and fever, and angina, and palpitations, and belching, and flatus, and tremors, and spots before the eyes, and catarrh.

Treatment should be in the hands of the general practitioner or general internist. They come first to the family physician or internist. That is where they should remain. The first duty of the attendant is to protect them from all the operations and manipulations which might be suggested to them ranging from straightening the nasal septum to Freudian psychoanalysis.

Psychoanalysis as a therapeutic measure is applicable to a very small percentage of these patients. Even to contemplate it four primary conditions must be fulfilled,—the patient must be of a high grade of intelligence, must want to carry through the analysis, must have plenty of money, and plenty of leisure. Even with these conditions fulfilled psychoanalysis must be contemplated for these patients with the same apprehension as a major surgical operation. The mortality of psychoanalysis is too high. The psychoanalysts kill too many souls. At best it is about like the other schemes outlined above,—a nice little mechanical explanation of personality disorders. The Freudian has the answer before he begins. The answer is that the patient has a conflict in his sex life. So all he has to do is what the endocrinologist or the focal infectionist or the allergist does,—he only has to twist the facts around until his patient fits his theory.

These patients must be treated on no preconceived theory. I recommend for your perusal in the handling of them some rather old-fashioned books,—Weir Mitchell's "Fat and Blood and how to make them," Dejerine's "Psychoneuroses," and DuBois' "The Treatment of Nervous Disorders." Of them all Dejerine's ideas will generally be found the most helpful. He approaches the origin of the disorder from the emotional rather than the mental side. Individualization, isolation and rest are important in the order named.

#### SUMMARY

The most important problem of the internist is the chronic invalid who has no organic disease. These patients are important because they constitute the largest single class of patients we see, because they are so badly treated and because our failures with them bring on us the greatest amount of public criticism.

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## DIAGNOSIS AND TREATMENT OF MAXILLARY SINUSITIS\*

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The sinusitis problem is of interest not only to the rhinologist but also to the general practitioner and in recent years, especially since the influenza epidemic of 1918, the attention of all of us has been more sharply focused upon it.

Sinusitis is a comparatively recent disease entity. Fifty years ago little was known or done relative to this condition. In fact, the past thirty years have witnessed the most important developments in its diagnosis and treatment.

We have chosen to discuss the maxillary sinus or antrum inasmuch as it is the most frequently involved of all the sinuses in infectious processes. We will not attempt the discussion of sinusitis in children as that is a complete subject in itself.

Maxillary sinusitis in the adult may be divided into the acute, subacute and chronic. Acute cases are separated into two groups, according to their etiological factors: (1) those following acute nasal conditions or a cold in the head; (2) those following tooth infections or tooth extraction.

In acute cases due to nasal infections the physician in general practice can accomplish more than in any other type of sinusitis. Incidentally, the diagnosis is usually not difficult and the treatment can be made very simple.

A fairly typical case of acute maxillary sinusitis will give the following history and symptoms: A cold in the head that has lasted from one to three weeks, or the statement of just recovering from an attack of influenza. There may or may not have been fever. A few days before consulting a physician began having pain in one cheek and perhaps around the eye of the same side, or, possibly, had complained of toothache. This pain may be slight or very intense. The pain if severe may come on early in the morning, reach its maximum intensity shortly after noon, and gradually subside so that by evening the patient feels fairly well. Occasionally, pain comes on later in the morning, or it may not begin until early afternoon. Considerable yellowish discharge can be blown from the nostrils and there usually will be postnasal dropping.

With the above history and symptoms one can diagnose an acute maxillary sinusitis with

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a fair degree of accuracy. This history may be augmented by an examination of the nose which will show a marked inflammation of the nasal mucosa with some pus. There will frequently be a nasopharyngitis with pus trickling down the pharyngeal wall. Pressure over the cheek or under the roof of the orbit will elicit tenderness. Transillumination is helpful in showing whether or not the frontal sinus is involved. X-ray if available is of value.

Occasionally, one will encounter an acute frontal sinusitis with a history very similar to the case just mentioned. The frontal, however, is not involved nearly so frequently as the maxillary. The pain comes on later in the morning, reaches its greatest intensity by noon, or shortly after, and subsides more quickly. Transillumination will assist in differentiating the affected sinus.

The treatment of acute maxillary sinusitis is both systemic and local. Let it be known here that we never irrigate an acute sinusitis during the first four weeks of the infection. The systemic treatment of sinusitis, as well as of other infections of the upper respiratory tract, may be grouped under the following headings: Catharsis, alkalization, analgesics and antipyretics. Every physician has his own favorite drugs with which to carry out this treatment, so no suggestions will be made here.

For local treatment we have found the following routine procedure quite satisfactory: Pledgets of cotton saturated with 10 per cent neosilvol solution are packed into each nostril in the region of the middle turbinates and allowed to remain for a period of twenty



Fig. 2. Lipiodol injected into both antra. Normal contour of sinus walls. Right antrum seat of acute sinusitis three months before taking picture. Cured by local applications. Left antrum seat of empyema three years previously. Cured at that time by three or four irrigations. Capacity of each antrum 10 cc.

minutes. No preliminary anesthetization of the nose is needed. An infra-red lamp is placed in front of the patient and the heat focused upon the face during the entire time the packs are in the nose. After twenty minutes the packs are removed and the patient is instructed to blow his nose. Three per cent ephedrine solution is then sprayed into the nose followed by some bland oil. From one to three treatments usually suffice to relieve the pain and inflammation and establish drainage.

Where this treatment is not available a simplified form may be used with some success. The packs in the nose may be omitted and the patient given a 3 per cent solution of ephedrine with instructions to drop five drops into each nostril every three or four hours, and to follow this by an oil spray. Moist hot cloths may be applied over the sinus for a period of fifteen minutes several times daily; or an electric heater may be focused on the face instead of the infra-red lamp. These, together with systemic treatment, will be worth the time and effort expended. Some rhinologists have had considerable success in the employment of suction and irrigation of the nose in these cases.

The treatment of acute sinusitis of dental origin presents a more difficult problem, and usually requires the attention of the rhinologist. In this type of infection the patient complains of pain or an uneasy feeling in the cheek following a tooth extraction or infection which occurred a week or two previously. The pain may be mild or of moderate severity. The



Fig. 1. Lipiodol injected into left antrum. Sinus completely filled, edges smoothly contoured, indicating normal sinus. Capacity of sinus 8 cc.



Fig. 3. Subacute sinusitis injected with lipiodol two months after onset of disease. Pus washed out of sinus before lipiodol injection. Only 5 cc. could be injected, indicating considerable hypertrophy of sinus mucosa. Two weeks previously only 1½ cc. lipiodol could be injected.

patient frequently complains of a discharge trickling down the nasopharynx. Nasal examination will reveal little. Transillumination will confirm the diagnosis and an X-ray may be taken if desired. These cases require irrigation of the maxillary sinus, and about 75 per cent of them can be cured with from two to six irrigations. The remaining ones will require a window resection under the inferior turbinate.

Some rhinologists object to irrigating an antrum, stating they have had some disagreeable experiences in one way or another. In several hundred irrigations we have experienced no difficulties.

In the discussion of the subacute type, which is our next classification of maxillary sinus disease, it is difficult to draw a definite line to indicate when the subacute stage begins or ends. We can only approximate the time.

The symptoms of an acute maxillary sinusitis which has been untreated will usually subside somewhat in from four to six weeks and the case go on to recovery or become subacute. The subacute stage can be best illustrated by citing a case history.

The patient, Mr. O., consulted me March 19, 1928, complaining of pain around the right eye for one week following a cold in the head of three weeks' duration. Upon examination, a diagnosis was made of acute maxillary sinusitis. Transillumination showed a cloudy right antrum. Neosilvol packs and infra-red light were used and systemic treatment prescribed. The patient was not seen again until June 1, 1928, when he came complaining of severe

headache over both eyes for the past ten days. He stated that he had not felt very well since his attack in March although the pain around the eye had ceased after the treatment. No acute nasal condition was found upon examination June 1, but both maxillary sinuses were cloudy upon transillumination. From the history of the case and our examinations March 18 and June 1 we made a diagnosis of subacute maxillary sinusitis. Upon irrigation pus was found in both antra. Upon second irrigation the left antrum was free of pus, and upon fourth irrigation the right antrum was clear. Patient had entirely recovered in two weeks. Four months later transillumination showed the sinuses were normal.

Subacute cases if untreated may go on for some months, then clear up spontaneously or go over into the chronic stage with few if any symptoms referable to the sinuses. If recognized, most of the cases can be cured by irrigation. An occasional case will require intranasal drainage. It is our custom, if a case does not show improvement after three or four irrigations, to recommend an intranasal operation. By improvement we mean a diminution in the quantity of pus and less odor if an odor had been present.

Chronic maxillary sinusitis may be divided into the empyemic, the hyperplastic, the polypoid and the atrophic. Each can be best illustrated by presenting a more or less typical case history.

A chronic empyema case comes complaining of frequent head colds, headaches, post-nasal dropping, and sometimes hoarseness, following a cold in the head. This has been going on for perhaps one to five years. Examination may reveal nothing in the nose, or there may be



Fig. 4. Chronic empyema and hyperplasia of both antra. Lipiodol shows antra incompletely filled and irregular outline of the oil in contact with mucosa.

pus in one or both nostrils, or some inflammation in the region of the middle turbinate. There is frequently pharyngeal hyperplasia due to postnasal dropping. Transillumination will show one or both antra cloudy as will also X-ray. Irrigation will show pus in one or both antra.

An example of chronic hyperplasia is one in which the patient complains of headache, sometimes very severe for several years; may or may not have frequent colds; has considerable postnasal dropping. Examination may show little or no pathology in the nose. Usually pus in the pharynx, pharyngitis sicca or pharyngeal hyperplasia. Transillumination will show antra cloudy and X-ray agrees more or less with transillumination. Irrigation shows no pus in the antra. Injection of antra with lipiodol will show marked hyperplasia of antral mucosa.

A case of chronic polypoid sinusitis will give a history of having had nasal trouble for years, colds in the head, postnasal dropping, headaches, etc. Some patients will have chest complications, such as asthma, bronchitis and bronchiectasis. Examination of the nose may reveal pus, polypi or hyperplasia of turbinates; antra cloudy on transillumination and X-ray. Irrigating fluid will not go through antrum. Lipiodol will show polypi within the sinus.

The atrophic type of chronic maxillary sinusitis described by Emerson<sup>1</sup> has a history similar to the hyperplastic or polypoid cases but upon transillumination and X-ray differ in that the transillumination is too clear through

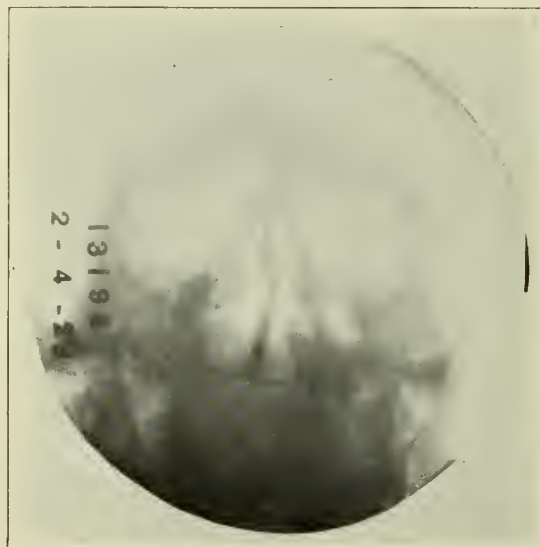


Fig. 5. Incomplete filling of right antrum with lipiodol showing a chronic hyperplasia. No pus found in antrum upon irrigation. Patient had nasal trouble for 15 years.



Fig. 6. Left antrum, Lipiodol occupies only upper part of sinus; partition prevents oil from going to bottom. Incomplete filling of upper part indicates polypoid degeneration. Patient had a large number of polypi removed from each nostril two months before picture was taken.

the involved antrum and X-ray is usually negative. In our series of cases we have either not encountered or have failed to diagnose the atrophic type of sinusitis. The more frequent use of lipiodol injections may assist in diagnosing this condition.

Hirsch,<sup>2</sup> of Vienna, describes a chronic catarrhal maxillary sinusitis characterized by a serous coryza, recurring polypi in nose, and a serous discharge from needle puncture. Upon opening the sinus he finds a polypoid mass but no pus. He believes these cases have been of the catarrhal type from the beginning and that there has never been any suppuration within the sinus. It is his belief that a large number of cases of vasomotor rhinitis are due to this form of sinusitis. Five out of fifteen cases he reported had asthma.

Let us pause here to state that many cases of chronic maxillary sinusitis have no symptoms referable to the nose or the sinuses, but are discovered accidentally when looking for some cause of a patient's ill health. Doubtless, some cases will clear up spontaneously and many others go through life undiagnosed.

The treatment of chronic maxillary sinusitis is almost always operative. A few empyema cases of less than a year's duration may be cured by irrigation, but most of them will require an intranasal operation.

There is considerable difference of opinion as to which type of operation is indicated in chronic sinusitis, the intranasal or the radical. A large number of rhinologists are using the



conservative intranasal method more frequently and doing fewer radicals each year. Hempstead<sup>3</sup> cites 385 cases treated conservatively. Of this number, two required radical operation later, two developed an osteomyelitis of the maxilla, one of which died, and four required a second intranasal opening.

It is our opinion that an intranasal operation will cure most cases of chronic empyema and hyperplasia of the maxillary sinus. A few cases of empyema and hyperplasia of many years' standing will require a radical operation, as will the majority of the polypoid cases.

It is understood that in our investigation and treatment of maxillary sinus disease we note the condition of the other sinuses and structures in the nose and correct any pathological conditions found.

Relative to operative procedure we wish to report our results in forty subacute and chronic cases in adults seen within the last year and a half:

Cured by irrigation, eight; cured by intranasal operation, eighteen; cured by radical operation, two; uncured by intranasal operation, four; uncured by radical operation, one; under treatment, two; cases that passed from our observation after diagnosis was made but before operative procedure was instituted, five; left antrum involved, seventeen; right antrum involved, eleven; bilateral involvement, twelve.

#### CONCLUSIONS

1. The modern trend in the treatment of all types of sinusitis is toward conservatism.

2. Most cases of acute maxillary sinusitis due to nasal infections will respond readily to systemic and local treatment.

3. Seventy-five per cent of acute cases of dental origin will be cleared up by irrigation. The remainder will require an intranasal drainage.

4. Most of the subacute cases will be cured by irrigation.

5. Most cases of chronic empyema and hyperplasia will be cured by intranasal operation.

6. Most of the polypoid cases and a few of the empyemic and hyperplastic ones of long standing will require a radical operation.

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## GONOCOCCAL DISEASE: ITS NATURE AND PROBLEMS\*

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According to most writers gonococcal disease is of great antiquity, but exact data as to its origin and spread over the world are not available. All are agreed, however, that it was common among the Greeks and Romans and references to the disease are found in the Bible. (Leviticus, XV.)

The points of greatest interest from the historical aspect are its recognition as a definite clinical entity apart from syphilis, and an appreciation of its serious nature in contradistinction to the opinion, once held, that it was a local, unimportant trifle no more to be apprehended than an ordinary cold.

Of course, the latter idea was only sporadic, not universal, before the days of Bernutz and Goupil, who wrote on pelvic diseases in their relation to gonorrhea in 1857. Not until the classical treatise by Emil Noeggerath in 1872 did the medical world awaken to the realization of the gigantic proportions of this disease; even then a storm of protest arose against many of the ideas which that master endeavored to convey to his colleagues. Today many of his beliefs and observations are admitted to be true. However, the discovery of the gonococcus by Neisser in 1879 definitely established the parasitic nature of this disease and presented to the world a distinct scientific problem for study. It has taken many years to produce even the present comparatively small amount of research in this field and we are yet very much in the dark.

The gonococcus peculiarly enough stands out as one of the strangest of all the pathogenic bacteria, unique in its manner of attack and method of invasion. It is especially refractory to cultivation in artificial media though it has a predilection for certain mucous surfaces of man. It is distinctively a human parasite and, strange to say, its growth is stubbornly resistant except in media which contain human plasma or serous fluids. Male and female alike are ravaged by its destructive influences and just as in the female, owing to its characteristic property of extension along the generative and urinary tracts, it established a disease ranking as one of the most important in gynecology, so in the male, when one considers the vast range of pathological conditions which may arise from its invasion, the effects of the attack are so far-reaching and formidable as to startle

\* Read before the staff of the Alfred Benjamin Dispensary, February 18, 1929.

the world and to elicit the statement by a renowned urologist that it is today "The most burning problem of the age."

After years of research and study, of endless clinical investigation and observation, most intense experimentation and profound effort on the part of bacteriologists, biochemists and pathologists, it is interesting to observe a statement in a recent work on "Gonorrheal Infections of the Urethra," by a brilliant and most capable author, viz., "Publicly unspeakable and medically outcast, gonorrhea has limped through the years, a veritable nobody's child. It is a serious disease and it needs serious attention." Again, "At least 90 per cent of those afflicted are treated by men who frankly confess that they really have a very meager knowledge of the scientific effects of this disease and of the precise methods for its most effective treatment."<sup>3</sup>

Hence, there can be no question as to the importance of this disease; there should be no need for argument to impress upon the medical student and the medical graduate the seriousness and far-reaching destructive tendency of gonococcal infections.

This brings to mind a consideration of the all-important phase of prevention and eradication. The disease is probably the most infectious of all parasitic diseases; it is transmitted in adults only through sexual intercourse, with a certainty which is characteristic

perhaps of no other disease. These facts are not only becoming recognized by the public but medical men are realizing the curability of the disease as knowledge of it spreads among them. It is perhaps more than merely a dream to say that the time is not far distant when only a relatively small percentage of gonorrheal diseases will be observed, and that with persistent steps to combat the infection it will finally be eradicated, at least among cultured people. In the words of Pelouze, "A little more publicity and a lot of medical care would certainly limit its spread."

Think then, of the possibilities presented to the young medical man of today if he would but arm himself against this evil with a determination to cure it and a willingness to use propaganda against its spread! Long enough has the profession been hoodwinked by the dogma that this disease is incurable! Long enough have most of us minimized its seriousness, its importance and the possibilities of preventing its transmission!

The ancient conception that "gonorrhea is no worse than a bad cold," as well as the absurdities of its incurability, must be relegated to the scrap heap of obsolete notions. It is curable; it can be prevented. But it must be combated along scientific therapeutic lines and not without a thorough understanding of the anatomical structures involved and the pathology and bacteriology of the infection itself.

The old ideas about the nature of this infection, based upon empiricism and its pitfalls and certain fallacies, have been replaced comparatively recently by the newer knowledge acquired after exacting experimentation, laboratory research and clinical observation and study.

The contrasts between the old and the more recent conceptions have been striking and already wonderful progress has been made. Gradually but surely the theories of the local character of the infection are giving way to the certainty of its systemic nature so that today gonococcal disease is classed as an infectious disease with local manifestations, the initial and anatomical invasion being merely the manifest localization of the gonococcus, and the deeper invasions accepted as almost certain manifestations of a general toxemia.

This viewpoint enables us to combat the infection more persistently, more intelligently and more successfully than ever before. It has stimulated scientists to direct their energies toward attempts to find therapeutic measures intended to increase tissue resistance against the gonococcus and, for the time being at least, to direct concerted efforts toward the elimination and eradication of the organisms from the

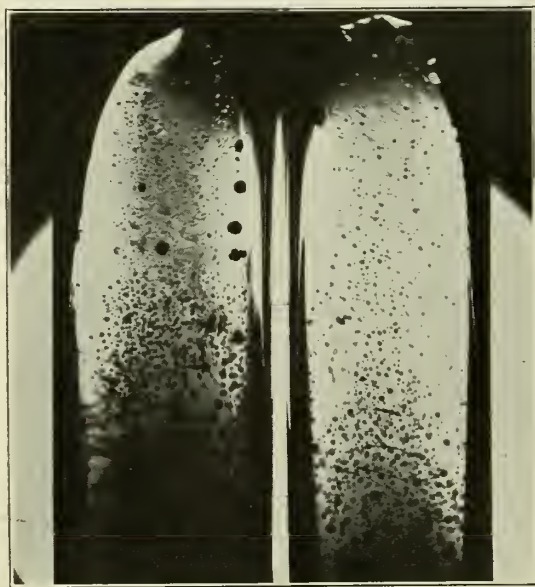


Fig. 1

Fig. 2

Fig. 1. Gonococcus of 36 hour growth on hydrocele agar, the planting being made direct from urethral pus. Observe seven large contaminating colonies of the *Staphylococcus albus* growing in the upper right quadrant of the slant.

Fig. 2. A pure culture of the gonococcus planted direct from pus at the same time Fig. 1 was planted. (From the laboratory of Dr. E. L. Stewart.)



tissues now recognized as the more or less natural habitat of this invading agent.

It would be well, therefore, if at the very outset students of this disease were to master with seriousness and determination the anatomical knowledge of those tissues and organs, both in the male and female, which offer a specially favorable soil for the implantation and growth of the gonococcus. In the male these are chiefly, the urethral mucous membrane with its glands, the prostate gland, the seminal vesicles, the epididymis, the verumontanum, the ejaculatory and spermatic ducts. In the female the parts that are more or less involved are, the vulva and vagina of children; the urethra and its glands, Skene's or para-urethral glands and ducts, Bartholin glands and ducts, mucous membrane and glands of the cervix, the endometrium, the endosalpinx, the ovaries and the pelvic peritoneum.

The matter of absolute cure assumes gigantic proportions, viewed in the light of a thorough understanding and comprehensive conception of gonococcal disease. The futility of those measures which are directed entirely along the lines of local therapeutic endeavors can be at once recognized. Local treatments are, of course, important, but if the gonococcus is to be entirely annihilated something more than local measures must be brought into play. In the cure of this disease local treatment alone is a myth and a blind delusion; the patient's general curative processes must be stimulated in some way. In the words of a recent authority, "The cure will probably be of a biochemic nature and will get its power from its ability to stimulate quickly the processes of tissue repair."

Gradually, more of us are recognizing that as an infectious disease gonorrhea must receive the treatment required either to destroy the organism responsible, as in numerous other infectious diseases, or activate the tissue resistance to overcome the gonococcal invasion. In other words, treatment should be based upon scientific observation,—anatomical, physiological, bacteriological. The absurdity of local measures must be recognized and we must agree with Pelouze who says, as do numerous others, that "The solution of the problem is more likely to be found in the laboratory than in the output of the manufacturing chemists."

The study of the actual pathological changes in the tissues furnishes some interesting if not startling revelations concerning the intractability of this infection. Some of the conclusions that necessarily must follow from the survey of the pathological study, are: First, that gonococcal disease is a gland disease. That

is, the bacteria invade the ducts of the genito-urinary glands rather than the epithelium of the mucous surfaces; second, that the disease probably invades the adnexa at the same time that the bacteria spread along the urethral canal, and manifests itself as an inflammatory process there when its incubation period ends; third, that the structure of the urethral canal, in the male particularly, owing to the multiple folds found in the mucous membrane and the creases appearing in the folds and acting as capillary channels, favors the rapid spread along this structure to the adnexa; and fourth, that in a very short time the submucous tissue and the connective tissue layers, as well as the ducts of the glands therein, are invaded by gonococci, thus setting up active inflammatory and even suppurative processes accompanied by early tissue resistance and efforts at repair.

At first the gonococci penetrate and multiply between the epithelial cells, after which within a period of perhaps a few days they may be found among the connective tissue layers. The purulent discharge, characterizing the acute stage, consists primarily of dead leukocytes, chiefly the polymorphonuclear, which succumb in their defense of the tissues against the irritating gonococcus; marked round cell infiltration occurs in the subepithelial connective tissues.

In the process toward repair the epithelium of the lower urinary tract, which at first is cylindrical, proliferates and soon becomes stratified, later becoming tough and even keratinized.<sup>5</sup> In the connective tissue, fibrosis gradually takes place with the deposit of fibrous bands of scar tissue, which squeezes out the gonococci and other irritating exudates; thus the tendency to stricture formation arises and is greatly augmented by contraction of the fibrous tissue through nature's effort to obliterate the inflammatory focus; the scar formation occurs anywhere along the urethra but is severely damaging to the posterior and membranous portions of the canal.

Attacks of gonococcal disease may be mild or severe, of short duration or more or less prolonged. In the latter, which may be designated subacute or chronic, the persistency is due usually to the presence of patches of uncured portions of mucous membrane which continuously attempt to eliminate the specific bacteria that persistently invade the structures about them. This tendency to penetrate is especially observed in the glands of Littré, the excretory ducts of which are easily blocked by debris which prevents the escape of inflammatory exudates, a condition conducive to most pernicious results.



Invasion by so-called secondary micro-organisms complicates the infection. They become additional factors in the chronicity of the disease; these organisms are the staphylococci, pneumococci, diphtheroids, streptopneumococci, *B. coli*, *M. catarrhalis*, etc.

Finger, Motz and Wertheim furnish practically all the reliable data we have in regard to the pathology of gonococcal urethritis, but among the more renowned investigators should be mentioned Bumm, Luys, Dinkler, Councilman, Oberlander, Kollman, Wassermann and G. A. Wyeth.

The gonococci invade the glands of Bartholin and of Skene, and the cervical, uterine and vaginal mucous membranes, and their glands soon become involved; the ducts here are very apt to be occluded by pus and cellular debris. The cells of the gland ducts proliferate and become infiltrated, as do those of the urethral mucous membrane; in many instances suppuration in the glands ensues; the inflammatory reaction is in time followed by attempts to heal and then follows the formation of fibrous tissue to replace the extensive proliferation.

In the process of healing many of the gland ducts become obliterated; scar tissue again plays the leading role in this, and to such an extent in the prostatic urethra that even the

ejaculatory ducts are impinged upon with greatly deplorable results, as evidenced by many distressing clinical symptoms. The prostate gland, seminal vesicles and the epididymis in turn become the seat of the same bacterial invasion and undergo congestion, infiltration, cell proliferation and even suppuration, followed later by nature's attempt to heal and the formation of fibrous scar tissue; sometimes the epididymis suffers destruction, either from suppuration or fibrosis.

The consideration of the symptoms, diagnosis and course of gonococcal disease in all its variations, stages and ramifications would consume a voluminous amount of space and time. It will be sufficient at this time to mention merely the division of the course of the disease into acute, subacute and chronic stages. This classification is purely arbitrary, because the acute stage may last a very long time and there may be numerous acute exacerbations of a chronic infection. However, in the male, as well as in the female, the acute stage is characterized by purulent discharge, redness, swelling and tenderness of the invaded mucous membrane. In the acute purulent secretion it is easy to demonstrate the gonococci in great numbers in the pus cells.

In the chronic form it is essential to locate, if possible, the source of the persistency of the disease and to ascertain the pathological lesion responsible for the continued infection; hence it becomes necessary to examine most carefully not only the urethra but the adnexa as well, employing all the physical means available. We must bear in mind that by the time the disease assumes a subacute or chronic aspect, and even when the gonococcal inflammation has fairly well subsided, the submucosa is likely to be invaded by numerous other bacteria which persist in keeping up an irritation thus furnishing a suitable medium for their growth; these are often found in the examination of smears or films of the urethral and other discharges, hence no diagnosis of gonorrhea is complete without staining a film of the secretions with Gram's method or, better, Jensen's modification. Cultures are extremely difficult to secure and require special and most exacting technic.

#### GRAM'S STAIN (RAPID METHOD)

1. Spread films, dry and heat.
2. Anilin water gentian-violet; or anilin methyl-violet, one minute.
3. Wash in water.
4. Cover with I.K.I. (Iodine one part; KI two parts; water 300 parts), or Gram's solution, for one-half minute.
5. 95 per cent alcohol until blue color ceases to come out.
6. Water.



Fig. 3. A large single colony of gonococci about two weeks old. Note the ray or petal appearance of the colony, which, contrary to the opinion of many, will spread the entire diameter of the slant. Beautiful concentric rings which unfortunately do not show in the picture are also present. (From the laboratory of Dr. E. L. Stewart.)

7. Counterstain delicate carbol-fuchsin (1-8), or Bismark brown.

Jensen in 1912 showed that the intensifying action of either anilin water or carbolic acid on gentian-violet is quite unnecessary.

His modification was recommended by the Medical Research Commission in 1918:

He discards the anilin water and carbolic acid and stains with .5% aqueous solution of methyl-violet for one-fourth to one-half minute. He increases the concentration of the I.KI, and counterstains with neutral red or .3% aqueous basic fuchsin.

A unique characteristic of the gonococcus must not be lost sight of, viz., the ability to remain dormant within a tissue, especially in the spaces between the epithelial cells, for a considerable period of time. Under favorable conditions the bacteria light up an active process of inflammatory reaction and an acute gonococcal infection arises with all the symptoms and disturbances of function characterizing the initial attack. One can see then why the course of a gonococcal infection may be so variable. The latency of the bacteria has been known to last for a number of years although the actual possibilities are subject to numerous disputes. There are other factors which enter into the prolongation or shortening of the course of the disease, chief of which may be mentioned, the virulence and severity of the initial attack, the involvement of the adnexa, the nature of the treatment instituted, the sexual behavior of the victim, and the persistency of both physician and patient in their efforts to effect a cure.

One of the most interesting studies in connection with gonococcal disease is the problem of immunity to the gonococcus. Many authorities claim that such an immunity does not exist. That man is the most susceptible if not the only susceptible animal to the gonococcus many will agree. Apparently no human being has a natural immunity to the disease. Furthermore, the disease has been produced through the transference of the gonococcus in pure culture; Bumm, Bockhart, Bokai, Brenner, Wertheim and Finger have reported such experiments.

Children's eyes and vaginal mucous membranes are much more susceptible than those of adults. The urethral and rectal mucosae are quite susceptible at any age.

Just what part histological factors play in immunity is debatable. Perhaps some individuals are more susceptible than others; these more sensitive susceptibilities are explained by some authorities as being due to anatomical factors, such as the more superficial situation of the capillaries, damage to or breakage

of the integrity of the mucous membrane, etc. Others claim it may be due to biochemic differences in the constitution, while many others explain this apparent difference in susceptibility as due to long continued or repeated coitus, a wide urethral orifice, a long prepuce, or other anatomical factors which predispose and undoubtedly do play a part. On the other hand, what of the numerous cases of gonococcal urethritis in the individual where hypospadias exists with a very tiny urethral meatus? When an injection of the gonococci was made subcutaneously negative results were obtained.

Dogs, rabbits, horses, monkeys and the anthropoid apes have a decided inborn immunity against the disease. This immunity is probably due to some biochemic cause as yet undetermined. The gonococci in culture experiments always grow best on media which contain some human albumin, such as blood serum, ascitic fluid, hydrocele fluid, etc. The growth may be inhibited by the serum of certain animals. One of the best media for culture is glucose-plasma-agar. Another good medium is calf's brain agar.

Is there a naturally acquired immunity to the gonococcus? Some claim there is not because, first, one attack never protects against a metastasis; second, chronic gonorrhea does not protect against a superinfection. But, first,



Fig. 4. A stained specimen from left side of Fig. 2, where smear effect is noted. (From the laboratory of Dr. E. L. Stewart.)



why does an attack of acute epididymitis cause a temporary disappearance of the urethral discharge and, second, why do some attacks of urethral gonorrhea gradually dwindle away without any treatment even after a chronic course of the disease? There must be some chemical or physiological explanation.

Many experiments have been conducted along the line of immunity and the general conclusions are that: first, a partial immunity is developed in gonorrhea; second, this immunity is general; third, there is also a local immunity with regard to the mucous membrane itself. This may be due to general circulating antistances, or biochemical changes in the cylindrical epithelial cells, and the histological changes in the flattened and more resistant epithelium.

Research work on artificially acquired immunity to the gonococcus and its toxins has been done by Wassermann, Wertheim, De-Chrismas, Bruck and others. Numerous research workers have written exhaustively on experimental work on the specific agglutinins, precipitins, bacteriolysins and complement deviating substances in the serum of animals inoculated with gonococci. The complement fixation test has been applied in the diagnosis of gonorrhea with some degree of success.

No attempt will be made here to outline the treatment. Numerous textbooks furnish an abundance of literature. The methods are legion. The only rational treatment in the light of our present knowledge is that directed toward the eradication of the gonococci from all the structures which harbor them. The disease must be influenced by local and constitutional therapy. It must be kept in mind that gonococcal disease is a gland disease, an infectious disease, and the urethral adnexa are infected as much or more than the mucous membrane of the urethra itself. The disease is not cured when the urethral discharge has disappeared; this cannot be too strongly nor too frequently emphasized.

The secret of treatment is not so much in the local application of gonocides to the surfaces as the successful surgical means of evacuating retention foci by appropriate drainage wherever the gonococcus may have deposited itself.

It must be kept in mind that although the gonococcus has a strong predilection for the mucous membranes, there are such clinical entities as gonococcal septicemia, gonococcal urethritis, endocarditis, peritonitis, pericarditis, tenosynovitis, salpingo-oophoritis, and other general or systemic complications, many of which are brought about by the entrance of the

gonococcus into the blood and lymph channels and carried to remote parts of the body. Thus, purulent lymph glands, both cervical and inguinal, have been observed, and gonococcal pyonephrosis as well, and the gonococcus has been successfully cultivated from the blood. Hence it is absurd to look upon the urethritis alone as the fundamental manifestation of this infection; in reality it is an infectious systemic disease.

The treatment therefore should be directed along systemic lines, both general and local. Attempts at prophylaxis should be made and the genito-urinary adnexa should receive careful and scientific attention until the inflammatory reactions have ended and the complete elimination of the gonococcus from the foci of involvement has been accomplished. Anatomical, physiological and bacteriological investigations should form the basis of scientific treatment.

Cures can be affected but only by persistent and continuous efforts, and a cure cannot be said to have been established until it becomes impossible to demonstrate the presence of the organisms after repeated examinations. Empirical traditions, unfounded hypotheses and theories must vanish before the application of authoritative scientific principles.

The multitudinous remedies with which the medical profession is bombarded must not be accepted without mindful cognizance of the true nature of this disease, and no system of treatment should be instituted without keen recognition of the seriousness of the infection, the furor of its complications, the dangers to the victim, both immediate and remote, and the helplessness against its spread.

An excellent author has stated that out of the multitude who are subjects of gonococcal disease, "are derived, perhaps, our largest contingent of neurasthenics, hysterics and eccentrics."

The ignorance of the public along these lines calls for missionary work on our part, and the frequent tragic effect upon morals, the general physical condition of the entire organism, especially the sex glands, as well as the effect upon the mental and psychic states of the afflicted, call for the most intensely exacting therapeutic measures.

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## THE "GUTTADIAPHOTO"

ACCORDING TO MEYER, BIERAST AND SCHILLING  
A NEW PRACTICAL BLOOD TEST\*

DR. VICTOR SCHILLING

BERLIN, GERMANY

The "Guttadiaphoto" is the invention of Fritz Meyer and Walter Bierast, of Hildesheim, Germany. It is an original form of blood examination and intended for direct clinical usage. This method has been developed and worked out clinically in cooperation between the above mentioned writers and the author. It is now up to us to answer the following question: Will this easy and simple technic really render the useful service which our experience has led us to expect?

Ehrlich originated the idea of making the blood examination one of the central interests of clinical usage and for this purpose simplified our method (smears). His idea was widely accepted, although some pathologists and even a few hemotologists were opposed to these simplified methods of blood examination because they feared that the manifold microscopical pictures and the fluctuating numerical results might be beyond the grasp of the general practitioner. The "hemogram method" originated by the author, however, has proven that the blood picture may easily be understood by everyone. This exact and very simple technic yields beautiful results even where difficult and complicated conditions are to be diagnosed.

To this older method has been added serological technic and the sedimentation test of erythrocytes (Fahraeus). The startling simplicity of our test soon made it popular. Many practitioners are able to perform this test, likewise the smaller hospitals and the clinical laboratories, just as well as the Wassermann reaction, which represents the most important practical serological blood control.

It is essential for the three tests named that their results may be evaluated properly by one who has some understanding of biological research and biological methods. It is for this reason that it fails at times in practice. The cause of this failure does not lie in results but in improper interpretation and application. A biological understanding must be carefully acquired, because the results are never one hundred per cent uniform. Border-line cases and exceptions and analogies in absolutely different pathological conditions require a finer degree of discrimination than physical and chemical methods. Herein lies the great difficulty for the practitioner. He is supposed to evaluate

the findings, very often without having adequate knowledge of the technic, the sources of error and the possible application. On the other hand, the laboratory will hardly be able to appreciate fully the problems in question and the results without knowing the clinical side of the case. All these methods will show their full range of usefulness only if handled by a medical man and well trained clinicians.

It was therefore the idea of Meyer to simplify the Wassermann reaction in such a manner as to make it possible for the practitioner to perform the test during office hours. He hoped that the test would thus be better understood and interpreted. His opportunity for success seemed to be very small, however, considering the difficulty of the technic. Thanks to his perseverance and the helpful support of Bierast and Amme, of Hildesheim, he succeeded after many fruitless endeavors in finding a procedure which at first really seemed capable of acting as a substitute for the Wassermann test; later on, however, when the test was more widely applied, and after our own clinical investigations, it proved to be a general, unspecific, very sensitive indicator of disease.

The unspecific character of the test showed itself during the experiments with an abundant clinical material. It was fully emphasized by the author in his introductory lecture (*Medizinische Klinik*, 1928, Vol. 17).

The Guttadiaphoto in its present form is the result of the cooperative effort of Meyer, Bierast and Schilling. For about two years there was a constant exchange of experiences after the fundamental outline of the test had previously been traced by Meyer and Bierast with the technical assistance of Amme. Opinions about the test and its basis went through a number of changes in the first few months of its existence; but during the past year the technical procedure has remained the same (D.R.P. Dr. chem. Amme, Hildesheim).

Both the practical and scientific interpretations have arrived at a perfect agreement so that the investigations are partially concluded.

## TECHNIC

The technic is very simple. Three strips of absorbent paper are placed in a little pasteboard frame. The red strip is number one, the green, number two, and the blue, number three. With an absolutely dry syringe, withdraw five-tenths of a cc. of blood from the vein. We eject through the needle one large or two smaller drops of blood on each one of the paper strips. The frame is then placed in a horizontal position.

The blood spreads slowly, forming a small red disk. After a few minutes, we can usually

\* Translated by R. B. H. Gradwohl, M.D., St. Louis, from *Zeitschrift fuer aertzliche Fortbildung*, 1929, No. 2, p. 45.

tell from the appearance of the blue strip three, whether there is pathology present. In more definite cases there may be noticed variations in the degree of the pathological changes on all three papers; for instance, a markedly rapid absorption of the drops, a greater extension of the blood disk, or a paler color.

The finer differences cannot be seen before the elapse of several hours, when the drops are perfectly dry. For reading, the papers must be examined by looking through them, the light being furnished by a frosted electric bulb:

## NORMAL FINDINGS

## PATHOLOGICAL FINDINGS

(a) The edge (most distinct on strip number one).  
A sharp dark red outline.

An indistinct, washed-out picture, i. e., absence of distinct contour.

(b) The "corona" (most distinct on strip one).

Even a normal blood will now and then separate itself from the area around the edge into a dark outline mentioned above and a distinct lighter zone next to the blood disk itself.

A washed-out, lighter, frequently brightly shining zone around the blood disk without contour.

(c) The disk (most distinct on strip two).

The blood disk is of a dark and uniform color; the dark blood red is evenly mixed with the dye of the paper strip. This produces especially on blue, a greenish compound.

The disk is lighter in color, mottled; the blood color is replaced by a yellowish brown or gray tint.

(d) The accumulation of color near the edge (most distinct on strip three).

This is normally never present because the dyes of the papers are not dissolved.

The dye is dissolved and carried near to the edge. It appears as a green edge on strip three.

(e) The formation of free rings.

The blood disk itself extends to the utmost periphery.

There will form around the blood disk a serous colored ring, the color being that of the strip (red, yellowish or blue). This is the dissolved dye which has been carried beyond the extent of the erythrocytes.

In pathological cases we may call these phenomena simply positive or strongly positive; and we may call normal findings negative. Or, we may make a careful analysis of the components of the findings and designate them, which will give us a much more differentiated picture, e. g., I b+c, II a+c; b+c+d+(e).

This means that on a strip I, there is to be found a pathological corona around a cleared up blood disk; on II an indistinct outline of the cleared up blood disk, on III also a corona, with a clear center, also color accumulation

near the edge and a suggestion of a free ring.

This represents a markedly positive Guttadiaphoto, e. g., that of sepsis.

The essence of the method consists in the simple making of translucent pictures of the drop of blood (hence, Guttadiaphoto); these become differentiated by the addition of the dye contained in the paper strips and the various pathological conditions of the blood.

The simplicity as well as the sensitiveness of the method recommend it. Of a hundred cases, chosen for the purpose, fifty-seven per cent had distinctly abnormal sedimentation reactions, seventy-five per cent had marked deviations in the leukocytic picture; ninety per cent had pathological hemograms, including the very sensitive "thick drop," which belongs to the hemogram, and ninety-one per cent had a clearly pathological Guttadiaphoto.

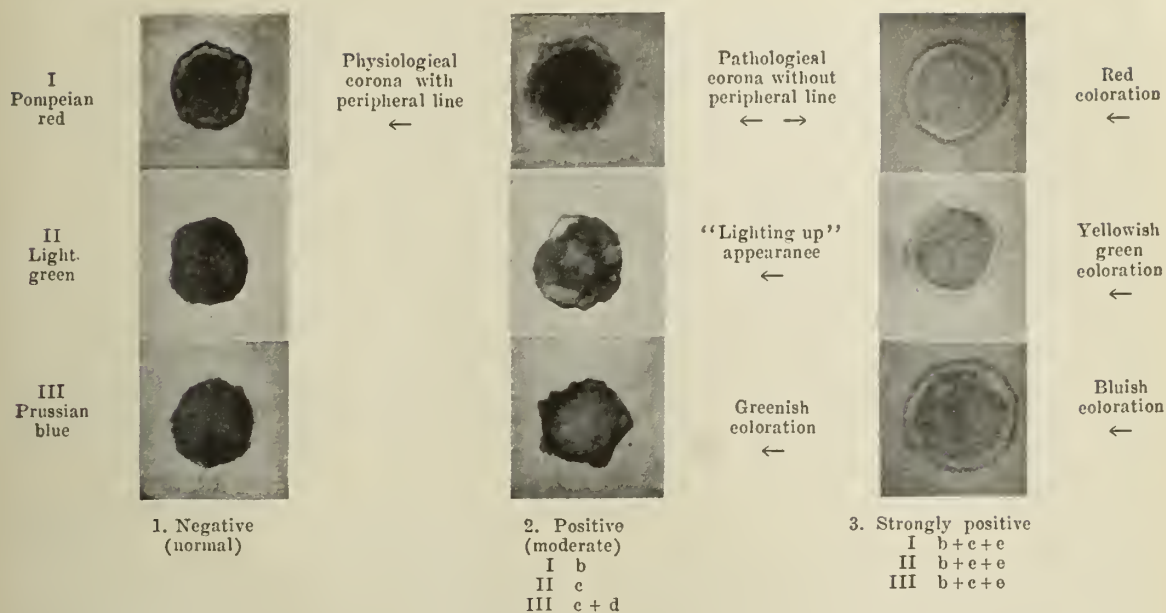
In other words, of one hundred different cases almost all of which were diagnostically very difficult, the Guttadiaphoto showed just as sensitive reaction of a pathological blood condition in general as did the highly sensitive total blood picture. The sedimentation reaction which is generally believed to be almost hypersensitive remained far behind, probably because its clinical limitations are relatively great due to individual differences.

Thus we see that the Guttadiaphoto shows plainly all the advantages of the blood methods mentioned above, simplicity, unspecific sensitiveness, objectivity.

Numerous mistakes with the method may all be avoided (usually due to moisture in the paper, on the table or in the syringe). When comparing Guttadiaphotos of one person which were made with the same syringe, we found no differences of clinical importance if the technic was properly carried out.

With regard to variability this test has its place between the hemogram and the sedimentation test. It is evidently much more manifold than the sedimentation reaction, but not nearly so variable as the hemogram. It has been noticed that the different pictures represent differences in degree only, e. g., the corona is the higher degree of the indistinct contour, a cleared-up center is sometimes due to an accumulation of color near the edge, provided it is not due to an extraordinary extension of the drop or a lack of hemoglobin; the free ring represents an extreme accumulation of dissolved dyes around the edge. It is self-evident that an anemic blood has in itself a slightly different color and that, therefore, anemia is often quickly recognized. The different pictures on the paper strips which do not appear in regularly equal combinations give promise





of a means of differential diagnosis, wider experience and better technic. There is room for further improvement in the method.

We will now emphasize the disadvantages of this test. They are to be found in its high sensitiveness, which furnishes positive pictures in various anemic and infectious diseases, sometimes in certain endocrine processes without localizing the disease. Another disadvantage is the absolutely uniform reaction in widely different conditions. Physiological conditions, too, may sometimes have a disturbing effect, for instance, pregnancy and menstruation.

If we apply the Guttadiaphoto to one specific disease, for instance, syphilis, its sensitiveness seems to be extraordinary and even superior to the Wassermann test. In a group of a hundred and forty positive cases of lues we (Schilling and Bruch) found the following:

Serum Reactions	Guttadiaphoto	Percentage of Cases
+	+	62
—	—	16
—	+	19
+	—	3

In other words, the Guttadiaphoto indicated an active luetic infection in nineteen per cent more and only in three per cent less cases than did the Wassermann and other serum reactions (Meinicke, Sacks-Georg).

With regard to specificity however, the Wassermann test is superior, since with any positive result of the Guttadiaphoto there are many other complications or misinterpretations in question than there are with the rather specific Wassermann test.

In spite of this, the value of the Guttadia-

photo should not be underestimated, especially in syphilis with its indistinct clinical aspects and in connection with continuation of treatment of old positive cases.

The same is true of beginning tuberculosis. Cases sometimes give us a positive Guttadiaphoto before we are aware of an active infection by any other clinical symptoms.

Blood diseases give a strongly positive reaction as soon as they are complicated by an anemia. This reaction is very marked, for instance in greatly improved pernicious anemia cases, treated by liver therapy, while the serious stages furnish extreme pictures with free rings. Even leukemia with a very high count may give a negative reaction before anemia complicates it.

It is understood that all acute infections give us positive pictures; but we know very little about the course of the reaction during convalescence. There is no prognostic significance to be attached to the test, such as have been found with the hemogram to be absent. The sedimentation test retains its positive reaction too long to be useful for prognosis in acute cases.

The degree of the reaction corresponds to the severity of the case, for instance in sepsis, tuberculosis and syphilis. It is biologically regulated. In other words, it is dependent on many finer factors (allergy, complications, anemia) and must therefore be rated very cautiously.

To summarize: the Guttadiaphoto is a blood test which the practitioner may make during office hours and which may be read later on. He needs no laboratory. He may receive great



help from an unspecific, biological variable symptom, in closest cooperation with his other clinical observations. He receives a complex and yet graded, variable impression of the blood condition, whether the blood is healthy or diseased.

If his clinical impressions should not fully explain the results, these findings will prove to be an objective and indisputable stimulus for exhausting all other resources to clear up the case. In the two years of clinical investigations and experiences we have seen that even in clinics where there is modern technic, valuable points could be gained. Many a case originally considered functional and nervous, was recognized later on as a latent infection of unknown or known genesis, thanks to the Guttadiaphoto and the further investigations which it caused us to make.

Most of the Guttadiaphotos may be conveniently preserved. They may thus be used even after the lapse of years as an objective and impressive proof of a formerly present disease. This may be of considerable importance in medicolegal cases and also as a proof of successful therapy.

It is always a difficult enterprise to estimate the value of a new method. Many different technics in the past have been introduced with highest expectations and today are forgotten. It is up to the practitioner himself to establish the definite value of this test. Our recent experiences justify us in requesting a wide interested circle to test out this method. There is no doubt that a trial with these simple Guttadiaphotos will be highly interesting.

Note. Details of the history of this method, its scientific background, final practical application, sources of error, with a comparison with other blood methods may be found in a small booklet, "The Guttadiaphoto," by Schilling. It is published by Gustav Fischer, Jena, and has numerous colored illustrations. A treatise on the scientific basis of the test is also in print in the *Zeitschrift fuer klinische Medizin*, written by Meyer, Bierast, Schilling, Bruch, and Genesisus. Simple directions for use are furnished with each package of Guttadiaphoto, together with a colored chart. They may be purchased in packages of one or three.

#### ADENOIDS MAY CAUSE MENTAL DULNESS

A child with adenoids is suffering from poor ventilation just as if he were in a poorly ventilated room. Such surroundings make him dull and lazy and in the same way a nasal obstruction may cause mental dulness, according to Dr. Emanuel Krimsky in the September *Hygeia*.

Adenoids may also cause deformity of the jaws, Dr. Krimsky says. If one closes the nostrils and tries to breathe through the nose he immediately feels an unpleasant sinking sensation in the cheeks. This is the effect that the nasal obstruction has on a child with jaws still undeveloped. The teeth are gradually deranged and the jaw develops unnaturally.

## WASHINGTON UNIVERSITY CLINICS

### REPORT OF A CASE OF ACROMEGALY 17 YEARS AFTER OPERATION BY THE ENDONASAL ROUTE

LOUIS H. BEHRENS, M.D.

From the Medical Service of Barnes Hospital.  
Presented at the Friday Morning Clinical Conference.

The patient whose history is here presented was first seen in 1912. A record of his condition at that time may be found in an article by Dr. W. E. Sauer<sup>1</sup> who examined the patient with me and performed the successful operation.

S. D., a Lithuanian, is now 49 years old. One of his brothers is unusually large but the other members of the family are of normal stature. Until the age of 17 he was in excellent health. At that time he began to have slight frontal headaches, most pronounced in the morning. Although these headaches were continuous and troublesome he was not incapacitated until the age of 22, when other more serious symptoms appeared. He noticed then a considerable enlargement of his hands, feet and face. His eyesight was impaired and he suffered from a weakness so great that he was forced to give up his occupation as a coal miner. He tried to become a bartender but eventually abandoned this work also



Fig. 1. Photograph of patient in 1913. Copied from article by Sauer.<sup>1</sup>

1. Sauer, W. E.: The Endonasal Route of Attack in Hypophyseal Tumor Cases, *Ann. Otol. Rhin. & Laryng.* 22:971 (Dec.) 1913.

because the clumsiness of his great hands caused him to drop glasses. His fingers were too big to clean the smaller whiskey glasses and he was not strong enough to lift the kegs.

For the next ten years, his symptoms gradually increased. His eyesight became more and more impaired, his headaches more severe, and the overgrowth of his extremities and face more noticeable.

At the time I first saw him he was 32 years old. He had a typical acromegalic facies. The teeth showed marked separation and his tongue was large. The hands were spade-like and immense. The greatest circumference of his thumb was  $3\frac{1}{2}$  inches, of his hand  $10\frac{1}{2}$  inches. He was quite unable to buy gloves to fit him. His feet were broad and he wore No. 11 shoes double E width. His sight was greatly impaired in the left eye. There was obvious atrophy of the left optic nerve. The measurement of visual acuity showed 15/200 in the left and 15/12 in the right eye. The visual fields were as is shown

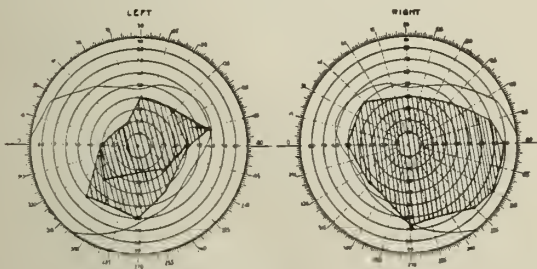


Fig. 2. Visual fields taken in 1912 showing marked contraction in left eye.

in Fig. 2. X-ray of the skull showed an immense sella turcica with extremely thin walls.

For a year he was observed without treatment. His sight became progressively worse, his weakness increased and his headaches persisted. Opera-



Fig. 3. Appearance of patient in 1929, showing arrest of symptoms of acromegaly after 17 years.

tion was considered necessary because of the failing vision in the left eye and was performed at the Deaconess Hospital by Dr. Sauer.

The transphenoidal technic was used. Dr. Sauer's note at the time reported the following:

"The septum and the region of the anterior wall of the sphenoid were carefully cocaineized with 20 per cent cocaine. The middle turbinate was removed on the left side after which a submucous resection was performed. The mucous membrane of the anterior wall of the sphenoid was pushed to the side until the openings of the sphenoid were reached. These openings were enlarged and the partition between the two sphenoid cavities removed. The upper wall of the sphenoid was found to be much lower than usual and appeared to be bulging down into the cavity. This wall of the sphenoid cavity was then opened by means of a chisel and the opening enlarged with punch forceps. The bone was not as thin as the X-ray suggested but there was no difficulty in removing it. An opening about 1 cm. by  $\frac{3}{4}$  cm. was made and through this the dura was incised."

At the end of 24 hours the patient stated that his head felt better but that he noted a peculiar beating of his heart. He was discharged from the hospital in ten days. In a month his visual acuity was 17/120 in the left eye with normal acuity in the right. In two months the visual acuity in the left eye had improved to 17/60. Eleven months after the operation the visual acuity in the left eye was 17/40 and the visual fields were definitely wider than before operation. He had, in this time, taken up rather strenuous work, such as unloading ice and other ordinary laboring jobs. He could wear smaller hats and smaller shoes than he could previous to operation.

Approximately 17 years have elapsed since this patient was operated upon. He returned to the city a short time ago, not because he was ill but because he was temporarily without a job. For the sake of being observed he entered Barnes Hospital in October, 1929. He had remained very well during the intervening years, had been free from headaches, his eyes had not troubled him, he had been employed at odd laboring jobs from time to time and for the last few years had been working on a farm. He still exhibited a remarkable picture of acromegaly.

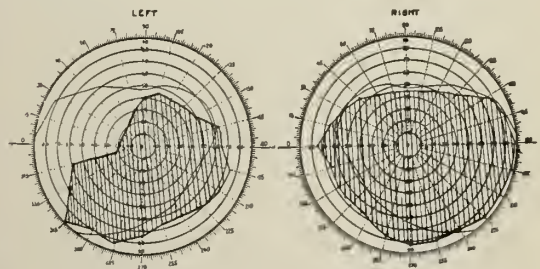


Fig. 4. Visual fields taken in 1929.

His appearance is well portrayed in Fig. 4. His thumbs measured  $3\frac{1}{2}$  inches, but the circumference of his hands was only  $9\frac{1}{2}$  inches. He was wearing at the time No. 10 shoes. The X-ray of his skull still showed a definitely enlarged sella but it was the opinion of Dr. Sherwood Moore that it was smaller than it had been 17 years before.

The vision in his right eye was 20/30 and that of his left eye 20/50. The visual fields taken at this time are shown in Fig. 5.





Fig. 5. X-ray of skull in 1929 showing huge sella turcica. A picture of the skull in 1913 may be found in Sauer's article.

In acromegaly two distinct groups of symptoms may be found. The so-called neighborhood symptoms are due to pressure and the mechanical presence of a pituitary tumor and are referable to the important structures located about the sella turcica.

The other symptoms are dependent upon overactivity of the pituitary gland, the most striking expression being abnormal and excessive growth. Surgical removal of the tumor may cause not only amelioration of the pressure symptoms but also actual regression of the signs of overgrowth in the face, hands and feet.

The operation performed in this case was a simple decompression accomplished by removing a portion of the floor of the sella turcica. No pituitary tissue was removed. The operation was strikingly successful in relieving local pressure and almost certainly saved the sight of the patient's left eye. This beneficent result was not unexpected because simple decompression has accomplished improvement in many other cases of acromegaly. The regression of the abnormal growth, however, was unusual. The change was apparent a few months after operation. It appears that during seventeen years the tendency to overgrowth has been completely arrested.

## GIARDIASIS AND PELLAGRA

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Presented at the Senior Class Medical Society of Washington University School of Medicine.

*Giardia lamblia*, a flagellate, was discovered in 1859 by Lambl.<sup>1</sup> Unlike most other intestinal protozoa, it lives in the upper part of the small intestine. It has a wide distribution in the United States and, although not often

recognized, it is probably of frequent occurrence. Its pathogenicity has been a subject of much controversy.

In the following case great numbers of *Giardia lamblia* were found and seemed to be responsible in large part for the serious symptoms from which the patient had suffered for many months.

A man of 23, a school teacher, came to Barnes Hospital on August 25, 1929, complaining of persistent cough of two and one half years' duration, diarrhea for one year, and of weakness which had been increasing for nine months. In two years he had lost 40 pounds in weight. He had always lived on a farm. His diet, which was carefully investigated, was adequate and well balanced. Except for frequent colds and a chronic sinusitis he was well until July, 1927, when he is said to have had pneumonia. He did not recover until September and in January, 1928, had a second attack of upper respiratory disease, also diagnosed as pneumonia. After that time he was never free from cough. He developed a persistent diarrhea. His stools contained mucus and were accompanied by considerable gas. At times they were tarry and greasy in appearance. The patient began a tonic, regained some weight, and his diarrhea, weakness and malaise disappeared. In September, 1928, his former complaints returned with four to six unformed stools daily and from that time until his coming to the hospital he never had formed stools. He noticed mucus, pus, and at times fresh blood. Some food, especially tomatoes and vinegar, caused pain occurring immediately after ingestion and not relieved by sodium bicarbonate. He belched frequently and vomited occasionally. The vomitus did not taste sour but sometimes contained flecks of blood. In December, 1928, the patient felt better and taught school for two months, but became too weak to continue his work. In the spring of 1929 he had a sore mouth and developed a dermatitis when exposed to the sun's rays.

Physical examination showed great emaciation with pigmentation of the exposed surfaces and a malar flush. The tongue was smooth and beefy in appearance and at the tip showed some atrophy. Examination of the chest showed no definite abnormality. X-ray examinations showed moderate amount of fairly dense hilus shadow on either side with slight widening of all lung markings. There was a small amount of atypical mottling in the first two interspaces on either side. There was tenderness in the epigastrium upon abdominal palpation, particularly along the costal margin to the right. A proctoscopic examination of the lower 14 centimeters of the rectum revealed an injected mucosa covered with mucus. X-ray examination of the gastro-intestinal tract showed pathological changes in the stomach and colon. There was persistence of contractile prepyloric narrowing characteristic of an infiltrating lesion but without evidences of hyperplasia characteristic of malignancy. There was a moderate gastric motor insufficiency. The duodenum was perfect in contour and tonicity. The colon showed failure of haustrations throughout the transverse and distal segments with a moderate narrowing. The diagnosis, by Dr. J. W. Larimore, was a prepyloric ulcerative lesion of the stomach and chronic ulcerative colitis. A duodenal drainage for



pancreatic tests disclosed upon microscopical examination myriads of *Giardia lamblia* in the vegetative form. The urine was negative. Sputum examination was negative for tuberculosis. Red blood cells and hemoglobin were within normal range. The gastric analysis revealed no free hydrochloric acid.

Intravenous injections of neoarsphenamine in 0.6 gram doses were administered at five day intervals three times during his stay in the hospital. A high caloric diet was instituted and stovarsol in 0.25 gram doses was given twice daily. In addition, brewers' yeast was given. Improvement was continuous until discharge October 8, 1929. The pigmentation had disappeared but the skin was dry and scaly. During his stay in the hospital the patient gained 24 pounds. Duodenal drainage three days before his discharge was negative for *Giardia*, but in a stool specimen obtained the morning the patient went home a number of encysted parasites were present. His stools were still unformed but were less numerous than at the time of admission.

Clinically this patient was thought to be suffering from pellagra. The skin lesions were typical in their distribution and character. The tongue was red and atrophic. Diarrhea was a prominent symptom. There was total absence of free hydrochloric acid. The relationship between these symptoms and the infestation with *Giardia* is suggested but must not be too readily assumed. That pellagra does occur secondarily to some other conditions in the digestive tract has been shown by the observations of a number of workers. A review of the literature reveals numerous interesting cases. Rolph<sup>2</sup> who in 1919 reported the first case of secondary pellagra, and Bryan<sup>3</sup> found the disease developing with carcinoma of the stomach. Graves<sup>4</sup> saw four cases of pellagra after operation for suspected peptic ulcers. Bender,<sup>5</sup> 1925, reported three cases associated with carcinoma of the stomach. Nuzum<sup>6</sup> found two cases of pellagra secondary to carcinoma of the terminal portion of the ileum. O'Leary<sup>7</sup> reported cases of pellagra secondary to (a) malfunctioning gastro-enterostomy, (b) carcinoma of the stomach, (c) carcinoma of the descending colon, (d) esophageal stricture, and (e) a gastric ulcer. O'Leary suggested that the term "secondary" pellagra be qualified by adding the site and type of the primary disease. Elliott<sup>8</sup> saw a case of carcinoma of the colon with a secondary pellagra. Recently, Larimore<sup>9</sup> has seen a case of pellagra which developed following chronic colitis, intestinal adhesions and duodenal ileus.

Lynch,<sup>10</sup> in 1927, in examining the feces of 45 cases of pellagra in the Roper Hospital at Charleston found one case in which *Giardia* were present. Thirty-nine of the cases were infested with one or more of the intestinal protozoa of the group of intestinal flagellates. As a control, 198 non-pellagrous individuals of

the same institution were examined; 92 of them had intestinal protozoa present in the stools but no *Giardia* were found. At South Carolina hospital for the insane at Columbia, Lynch studied 20 cases of pellagra and found one case with *Giardia* while 13 cases showed one or more of the other intestinal protozoa. In 27 cases of old inactive pellagra he found 5 cases in which intestinal protozoa were present with no cases infested with *Giardia*. Lynch mentions also the experience of Ridlon who found *Giardia lamblia* in 18 out of 95 pellagrins. His observation led him to believe that the high prevalence of parasites in the pellagrous was brought about by the intestinal disturbances in pellagra producing an optimum condition for their growth and that with the return of the intestinal canal to normal function there was a quiescence or a disappearance of the parasites. The association of *Giardia* infestation with pellagra is thus shown to be not unusual. The causal relation is by no means established.

The pathogenicity of *Giardia* has been much debated. Attention was attracted to the subject during the Great War. Fanthom and Porter<sup>11</sup> in 1916, report 187 cases of giardiasis in 1305 soldiers who had returned from Gallipoli and were victims of attacks of diarrhea. In their experiments on rabbits they found that the intestinal epithelium was eroded and distorted by the direct suctorial action of *Giardia*.

Wenyon,<sup>12</sup> in a critical review of the intestinal protozoa of man, points out that *Giardia lamblia* differs from the other intestinal protozoa in that it lives in the upper part of the small intestine. In sections of rabbits' intestines he found that *Giardia* had invaded the glands of the mucosa and that they were sometimes seen sitting on the glandular epithelium in rows. He states that he had observed two or three persons who maintained their infestation for years, eliminating great numbers of the flagellates, with no signs of intestinal derangement. In other cases he noted interval attacks of diarrhea with passage of mucus in which *Giardia* were seen in great numbers. These diarrheal attacks with the passage of mucus and great numbers of the flagellates led Wenyon to suspect their pathogenicity.

Caroline McGill,<sup>13</sup> 1922, at Butte, Montana, found 12 cases of giardiasis over a period of ten years, nine of them showing no symptoms referable to the bowels. Three of the cases, however, suffered severe digestive disturbances with only the presence of *Giardia* to account for them. McGill made use of duodenal tubes and subsequent examination of duodenal contents.

Lyon and Swalm<sup>14</sup> in 1925, found in the literature from 1912 to 1925, 3200 cases in which either *Giardia* or their cysts had been found; 2706 of these cases were distributed over 11 states with no special geographical localization. During 1923 and 1924, in Philadelphia alone, there were 83 cases of giardiasis reported. It is the opinion of Lyon and Swalm that these parasites, by their localization in the duodenum and jejunum, and by their peculiar sucker-like disc, attach to the duodenal epithelium producing a constant irritation and catarrh, and possibly an inflammatory edema. If they occur in the neighborhood of the ampulla in great numbers, it is possible for them to produce a mechanical obstruction to the flow of bile. These investigators in conclusion point out that this parasite is definitely pathogenic and that it is often clinically associated with disease of the gallbladder, bile ducts and duodenum.

Reginald Miller<sup>15</sup> in 1926 reported 23 cases of giardiasis in children, the great majority of cases being brought to the hospital for treatment of chronic diarrhea. No explanation for the diarrhea was possible other than the finding of great numbers of *Giardia* in the stools.

In the United States Veterans' Bureau Medical Bulletin, September, 1927, is reported an unusual case of giardiasis with diarrhea that alternated with constipation over a period of 27 years before the true etiologic agent was discovered. The patient suffered much from nausea and from vomiting. Sometimes he vomited blood in small amounts, and suffered extreme pain and tenderness in the upper abdomen, particularly at the costal margin. His symptoms persisted until he became extremely weak, cachectic, emaciated, anemic and nervous. Stool examination was negative, but gallbladder aspiration showed myriads of *Giardia*.

From these studies it is sufficiently apparent that troublesome symptoms occur frequently during infestation with *Giardia*. Other reports amplify the picture of the disease. In adults constipation may be present as well as diarrhea, or there may be an alternation of these two symptoms. In children diarrhea is more frequent. Abdominal tenderness especially in the epigastrium is quite frequent, and the presence of gas is an almost invariable accompaniment. Anemia, weakness and loss of weight have been found. Nausea occurs quite frequently and vomiting is seen in some of the cases. Headaches may be present. Enuresis and priapism have been reported. In a great many cases *Giardia* has been associated with arthritis. In trying to ascribe any set of symptoms to *Giardia* infestations one encounters difficulties.

Clinically this case was typical of pellagra. The diagnosis of prepyloric ulcer was made by X-ray examination. No filling defect was found but there was a constant contour and a persistent gastric motor insufficiency in the prepyloric portion of the stomach. No symptoms were definitely referable to this lesion except the patient's response to ingestion of sour substances already mentioned. It was thought that the gastric lesion was not active in the causation of pellagrous symptoms. Infestation with *Giardia* was discovered incidentally in the course of the routine examination. The evidence does not allow the conclusion either that *Giardia* was the cause of pellagra or that it was a secondary invader in the course of a debilitating disease. It is interesting that nothing in the dietary habits of the patient suggested an obvious background for pellagra. The ulcerative colitis was possibly of a type which has been reported by Larimore<sup>16</sup> in vitamin deficiencies. It may well have been an accompaniment or even a result of pellagra rather than a cause. The symptoms which have been referred by many observers to infestation by *Giardia* indicate that the organisms can seriously interfere with intestinal digestion and absorption of food and that the presence of great numbers of these parasites may predispose to deficiency diseases.

The reports in the literature evidence the widespread occurrence of human infestation with *Giardia*. It is certain that many cases pass unrecognized since the records of large hospitals may reveal no cases over long periods,—a condition hardly possible if routine examinations were made. The difficulties of recognition of the parasites are not great but involve certain features not always adequately considered.

Detection of the parasites by stool examination is possible only under certain conditions. Stools must be fresh and must be examined immediately. The motile form of *Giardia* is rarely found in the feces because the organisms quickly encyst. The most successful demonstration of the vegetative form of the parasite is made after a duodenal drainage and an examination of the duodenal contents. This is possible because the parasite localizes in the duodenum and the jejunum.

#### SUMMARY

1. Infestation of the upper intestine by the protozoan flagellate, *Giardia lamblia* may be of clinical importance, causing diarrhea or constipation and in some cases producing malnutrition presumably due to interference with the absorption of food.

2. A case of clinical pellagra has been reported in which the presence of great numbers



of *Giardia lamblia* seemed to be an important contributory factor.

Barnes Hospital.

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Barnes Hospital.

#### TEACH BOYS HEALTH HABITS BEFORE COLLEGE

A boy needs something more than an adequate wardrobe when he enters college, observes Dr. Morrill L. Ilsley in the school issue of *Hygeia*. Writing from the point of view of a college physician, Dr. Ilsley tells parents some things their boys should learn during high school days if they are to conserve their health through college.

Wise parents gradually allow their sons to assume responsibility for their physical well-being while they are still in the secondary school. They must be trained to take their health problems to a higher authority. Particularly should they learn to come early rather than late to the college health department.

The boy in high school should be taught how to use his leisure time. Teach him, Dr. Ilsley urges, that sports are excellent builders of reserve energy; teach him that certain other activities, if indulged in to excess, lead only to sapping that precious reserve energy.

Sensible clothing is an important factor in health. It is now recognized that heavy underwear causes more colds than it prevents, yet many boys enter college loaded down with this drag on their health. It is much more sensible to provide heavy outer garments to be put on when exposed to the actual rigors of winter.

Sleep is a commodity too little indulged in by college boys, Dr. Ilsley observes, and it should receive more attention. Many boys omit breakfast, a practice heartily condemned by physicians.

Health habits of the right sort should be so firmly rooted in every boy that the temptation to go without sleep could not occur; that improper diet eaten in a haphazard fashion would be considered the evil that it is; that adequate exercise would be an absolute necessity for healthful living.

#### SAVE CHILD'S FIRST MOLARS, DENTIST URGES

Dental decay is largely a disease of youth and if it is to be fought successfully and conquered it must be tackled in youth, writes Dr. C. N. Johnson in the annual school number of *Hygeia*, the September issue.

Every one who has anything to do with children should know the ill effects of neglected teeth on the physical welfare of the growing child and should make every effort to have decayed teeth cared for by a dentist at the earliest possible moment.

Dr. Johnson urges particular attention to the first permanent molars, which he calls the most important teeth in the mouth. These teeth mean more to the form of the jaws and the effectiveness of mastication than several of the other teeth combined.

Every mother, nurse, governess, guardian, physician and teacher should be able to locate a first permanent molar without question. Dr. Johnson gives the following rule: start in the median line in front between the two central incisors and count back on either side. If there are more than five teeth it may be known at once that the extra ones belong to the permanent set.

There are two first permanent molars in the upper jaw and two in the lower and they are the chief support of the jaw during the period between the loss of the temporary teeth and the growth to full length of the rest of the permanent teeth. The extraction of even one of them seriously disarranges the anatomic relation of the upper teeth with the lower ones and not only does it interfere with effective mastication but it causes a loss of character in the contour of the child's face. These facts should induce every one connected with child development to try to conserve the first permanent molars, Dr. Johnson insists.

#### CLEVELAND DEVELOPS HEALTH PROGRAM IN PUBLIC SCHOOLS

Cleveland, Ohio, has one of the most extensive health programs in its public schools of any city in the United States. It is described by Henry S. Curtis in the September issue of *Hygeia*, which is the annual school number of the magazine.

Dental service is one of the most important features of the Cleveland program. Nineteen full-time dentists, seventeen dental hygienists and twenty assistants examine the teeth of the elementary school children every year, point out the defects and give dental instruction, but do not fill or extract teeth. That is left for the family dentist to do.

There are twenty-one sight conservation classes in the Cleveland schools. The children use books with 24 point type (about a third of an inch high), large crayons about 1 inch in diameter and pencils with large black leads. Periods of study are short and most of the instruction is given orally. It is interesting to learn that these children often go back to their regular classes to recite.

Lip-reading classes are in the process of formation for the children who are hard of hearing. The author calls attention to the fact that surprisingly few children in Cleveland have defective hearing. The authorities believe that this is due to the attention that the children's ears have received from their first contact with the schools, particularly to the removal of diseased tonsils and adenoids, which are ordinarily responsible for many ear troubles.

Cleveland has 200 classes for children with speech defects and a waiting list of 200 children most of the time. These classes are taught by specially trained teachers and meet only once a week.



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JANUARY, 1930

## EDITORIALS

### HANNIBAL OSTEOPATHS LOSE

An important decision upon the right of osteopathic physicians to treat patients in hospitals privately endowed and controlled by a board of trustees, even though the title to the property is vested in a municipality, was rendered by Judge C. T. Hays in the Hannibal Court of Common Pleas on December 16, 1929.

Judge Hays dismissed the petition of certain osteopathic physicians in which they asked the court to restrain the board of control of Levering Hospital from enforcing a rule that excluded osteopaths from treating patients in the hospital. The Levering Hospital was built by Mr. Aaron R. Levering and his wife, of Hannibal, and deeded to the City of Hannibal "to provide in perpetuity a suitable hospital for the curative treatment and nursing of such sick and injured patients as may be admitted therein by the board of control, as hereinafter provided."

The petition of the plaintiffs was dismissed upon two grounds, (1) that the suit was improperly instituted because the Attorney-General of the State did not file the suit or was not a party to the suit, and (2) because the plaintiffs (the osteopaths) did not come within the purview of the deed in its description of the beneficiaries of the trust. The first ground is purely technical, but the second is a sweeping victory for the management of private hospitals to control the personnel of the staffs of hospitals and upholds the right of such management to exclude irregular or sectarian practitioners of all kinds from the use of hospitals. The opinion of Judge Hays is very lengthy and discusses the issue in detail.

Upon the question of the Attorney-General of the State being the proper person to institute such a suit or being made a party to the suit, the court said: "If property devoted to a public charity is endangered or faultily administered,

the attorney-general, as such, may institute the proper proceedings to protect the estate. This is settled law in this country as in England.

"The attorney-general as representing the public is a protector of all persons interested in the charity. He represents the entire beneficial interest, consequently, in all cases in which the beneficial interest requires to be before the court the attorney-general must be a party to the suit.

"In suits in regard to the enforcement or administration of a public trust or charity the attorney-general is the proper suitor, and he may file an information in equity either of his own motion or on relation of any party concerned. The attorney-general is a proper and generally necessary party to such suit."

In the deed of conveyance to the City of Hannibal it is stated that the gift is made to provide "a suitable hospital for the curative treatment and nursing of such sick or injured persons as may be admitted therein by the board of control." Another clause in the deed reads, "Its conduct and management shall forever be free from all political, religious, social or other partisan or sectarian bias or prejudice, preference or influence." It is upon this clause that the osteopaths based their right to treat patients in the hospital and claimed that their exclusion was a violation of this clause because it deprived them of the use of the hospital through "partisan or sectarian bias or prejudice" for the care and treatment of their patients. Upon this point the court pointed out in an analysis of the Levering deed that legal title to the property was vested in the City of Hannibal and that the equitable or beneficial use of the hospital was vested in an indefinite number of persons, sick and injured, to be ascertained and admitted to the hospital by the board of control. The osteopaths did not claim any legal right to the use of the hospital, but claimed that as physicians they came within the purview of the clause in the deed which designates beneficiaries of the gift, the osteopaths holding that if they have patients needing hospitalization they the physicians have the right to treat their patients in the hospital and to have them received therein for that purpose.

Concerning this claim by the osteopaths, the court said: "It was pointed out in the analysis of the Levering deed that the only beneficiaries of the trust are sick and injured persons. It is too plain for argument that by no stretching of the terms 'sick and injured' can they be made to include citizens, taxpayers and physicians generally, unless such persons become sick or injured and desire admission to the hospital to be treated. All such persons other than the

sick or injured are strangers to the deed and therefore cannot prosecute a bill in equity in regard to the administration of the trust."

They further claim that the rule excluding osteopathic physicians is a violation of the clause that the hospital shall be free from partisan preference or influence since the evidence tends to show that the rule was adopted because of the threat of physicians on the staff to withdraw or reduce their patronage to the hospital as the admission of osteopaths prevented the hospital from being recognized by the American Medical Association. It developed that less than two per cent of the annual receipts and income of the hospital was derived from patients of osteopathic physicians when they were permitted to treat patients therein, so the members of the board of control adopted the rule primarily to avoid financial loss to the hospital which might result from the withdrawal of the patronage of doctors of medicine and in order to obtain for the hospital a high rating by the American Medical Association.

By upholding the rule of the board of control of Levering Hospital that only reputable physicians licensed to practice medicine and having a recognized degree of Doctor of Medicine be permitted to treat patients in the hospital thus excluding all irregular and sectarian practitioners, Judge Hays has very materially strengthened the position maintained by all private hospitals that they have the right to decide what sort of physicians shall be permitted to treat patients in the hospitals, a most welcome addition to other legal opinions supporting this contention.

When, we wonder, will the irregular, sectarian, or limited practitioner of the healing art learn that there is no back door entrance through which he can approach the plane occupied only by those possessing the degree of Doctor of Medicine. Statutes may confer and do confer upon those willing to offer themselves as healers of the sick with a limited amount of learning and incomplete knowledge of the human body and its diseases, but such statutes do not and never can make such persons real physicians, nor can such persons by any artifice long deceive the people concerning their limited knowledge and ability to treat the sick.

#### THE SURVEY COMMISSION AND THE STATE GENERAL HOSPITAL

The report of the State Survey Commission is now in the hands of Governor Caulfield. It is the most stupendous proposition for improv-

ing and increasing the facilities of our educational, eleemosynary and penal institutions ever advocated in this state.

Altogether the report provides for the expenditure of \$246,000,000 in a period of twelve years but suggests the means of obtaining approximately only \$159,000,000 of the amount leaving the problem of finding the means of raising the remainder of the sum to the Governor and the legislature.

The chief source of income recommended for the additional revenue to inaugurate the vast program they have proposed is to come almost entirely from income and corporation taxes.

No one familiar with the needs of the educational institutions in Missouri, the penal and eleemosynary institutions, will doubt the need of even the stupendous sum proposed by the Commission in order to bring benefits that should flow from these activities to harmonize with a modern conception of the state's responsibilities toward its wards and citizens. Evidently the question of a bond issue was frowned on as being infeasible and an increase in the general taxation was generally regarded by the Commission as impracticable.

The plans regarding the eleemosynary institutions which hold the greatest interest for the medical profession are very ambitious. Whether the proposal to construct so many new buildings as seem to be a part of the program is wholly necessary might be a question for solution by technical experts. One entirely new building was recommended by the Commission, namely, the construction of a psychopathic hospital to serve as a clearing house for the distribution of persons committed to the state hospitals.

The proposition of the Missouri State Medical Association for the erection of a state general hospital at Columbia and the extension of the medical course at the State University to the full four year term was advocated and recommended by the educational experts from New York but we have not seen any statement in the Commission's report to the Governor that the Commission included in its recommendations the adoption of this plan. We understand, however, that all the documents submitted by the experts were handed to Governor Caulfield together with the report of the Commission.

At this writing it is not known whether Governor Caulfield will decide upon the consideration of the Commission's report by the legislature in extraordinary session to be called by him or whether he will study the proposition during 1930 and submit it to the regular session of the legislature in 1931.



## BEWARE OF THE UNLICENSED INSURANCE COMPANY

A number of physicians have inquired about the reliability of the Postal Indemnity Company, of Dallas, Texas, which it is said sells a policy for \$3.65 per year and has solicited subscribers in Missouri.

We have not investigated the standing of the Postal Indemnity Company in Texas, being here interested only in warning our members against buying insurance from companies who have not been licensed or authorized by the state insurance department to do business in Missouri. A letter from the state department says that the Postal Indemnity Company of Dallas, Texas, is not licensed to do business in Missouri.

Concerning the buying of insurance through companies not licensed or authorized to do business in Missouri, the insurance department says there are several important advantages in placing insurance in authorized companies only. For instance, if a loss occurs in a policy written in an authorized company and there is trouble in securing the proper settlement the insurance department can and will intervene and assist in an equitable settlement. If a settlement cannot be effectuated and the policyholder must resort to court proceedings he may sue in any court in this state and obtain service on the insurance company through the superintendent of insurance. Furthermore, if a judgment is obtained against the company it is obliged to pay the judgment or have its license revoked to do business in the state. The state, of course, profits by the collection of a premium tax on all business written in Missouri. On the other hand, if a policy is written in an unauthorized company the insurance department has no means of helping to effect the settlement of the loss. The policyholder cannot sue in a court in Missouri but must go into the home state of the company, a thing impossible for the average citizen. Service cannot be obtained through the state insurance department and if a judgment is obtained in a court of this state there is no way of enforcing the judgment.

It can be seen from these statements that persons buying insurance from a company licensed and authorized to do business in Missouri have a very decided protection against loss through the cooperation of the state insurance department, none of which benefits are obtainable from the department if the insurance is bought from an unauthorized company.

## NEWS NOTES

Dr. W. W. Duke, Kansas City, was the guest of the St. Louis Medical Society, Tuesday, December 10, 1929, and spoke on "Allergy as Related to the General Practitioner of Medicine."

Dr. Claude J. Hunt, Kansas City, has returned from a three months' visit to the surgical centers of Europe, including the clinics of Vienna.

The Fifty-Ninth Annual Meeting of the American Public Health Association will be held in Fort Worth, Texas, during the week of October 27, 1930, with the Hotel Texas as headquarters. The annual meetings of this the oldest and strongest of public health organizations brings together for a week of scientific discussion all of the public health leaders of the continent. Each of the ten sections of the association arrange an individual program and there are a number of general sessions to which the public is invited.

Drs. M. Pinson Neal and Max M. Ellis, of the University of Missouri School of Medicine, Columbia, contributed a paper entitled "The Etiological Factor of Fat Necrosis" to the Section on Pathology of the Southern Medical Association at Miami on November 22. Dr. Neal, who is professor of pathology at the University of Missouri, was elected secretary of the Section on Pathology. On December 9, Drs. Neal and Ellis were guests of the Chicago Pathological Society where they delivered an address prepared jointly on "Experimental Fat Necrosis and Isolation of a Causative Factor."

On December 6 and 7, 1929, the first meeting of the Central Association of Obstetricians and Gynecologists was held in St. Louis. Clinics were held in the morning at St. Mary's Hospital, St. John's Hospital, Barnes Hospital and the St. Louis Maternity Hospital. In the afternoon papers were read, and a similar program was given on December 7. The organization meeting, together with a banquet, was held at the University Club on the evening of December 6. Dr. Palmer Findley, of Omaha, was elected chairman and Dr. E. D. Plass, of Iowa City, Iowa, secretary. All states bordering on the Mississippi River and the Gulf of Mexico are included in the territory covered by the association. The place of the next meeting will be decided by the executive committee.

On the evening of December 16, Dr. William Engelbach, Santa Barbara, California, formerly

of St. Louis, gave a reception at his home to the medical profession of Santa Barbara in honor of Dr. George Dock, Pasadena, formerly of St. Louis and professor of medicine at Washington University School of Medicine.

Dr. Russell L. Haden, Kansas City, and Dr. Joseph Colt Bloodgood, Baltimore, were presented with the gold medal of the Radiological Society of North America, at its fifteenth annual meeting in Toronto, December 2, 1929. This award, the highest within the gift of the society, was made by Dr. Maximilian J. Hubeny, Chicago, president of the society. This honor was bestowed upon Dr. Haden for his research work in the X-ray study of dental infection. Three years ago he was awarded the bronze medal of the American Medical Association for research in dental bacteriology. Dr. Haden is head of the experimental laboratory of Bell Memorial Hospital, and also professor of experimental medicine, University of Kansas School of Medicine. Dr. Bloodgood, clinical professor of surgery at Johns Hopkins University School of Medicine, was given the award for his work in the study of bone malignancy, its diagnosis and treatment by X-ray and radium. Only eighteen persons have been awarded the Radiological Society's gold medal, including Mme. Curie, of France.

On November 2, 1929, the new McCune-Brooks Hospital at Carthage was formally opened by a "Doctors' Dinner" given by the hospital staff. Approximately one hundred men were present from adjacent cities and nearby counties. Dr. Everett Powers, Carthage, presided, and Dr. L. B. Clinton, Carthage, acted as toastmaster. The principal speaker was Dr. Jabez N. Jackson, Kansas City, former president of the American Medical Association. He spoke on the history of hospital development and management, highly complimenting the new institution. Dr. H. L. Kerr, Crane, president of the State Board of Health, also addressed the meeting. On the following day, November 3, the dedicatory services were held before a large gathering, when Dr. Jabez N. Jackson again spoke on subjects of interest both to laymen and physicians. The hospital was made possible through the gift of \$75,000 by the late Colonel John C. Guinn, of Carthage, which sum was duplicated by a city bond issue. Together with the endowment of the old institution, it was possible to erect one of the most perfect and well equipped small institutions in the country. It is a fireproof structure containing sixty beds.

The Trudeau Club of St. Louis will hold its regular monthly meeting in the St. Louis Medical Society Building, January 2, at 8:15 p. m. The following program has been arranged: "Tuberculosis of the Lower Bowel With Newer Methods of Treatment," by Dr. E. L. Sheahan. "Value of Basal Metabolism in Pulmonary Tuberculosis," by Dr. Alphonse McMahon.

The Association of Assistant Physicians of Missouri met at State Hospital No. 1, Fulton, Wednesday, October 23, 1929. The address of welcome was given by Dr. E. T. McGaugh, superintendent of State Hospital No. 1, to which Dr. T. T. O'Dell, of State Hospital No. 3, Nevada, responded. At the scientific session papers were read by the following: Drs. Harry Barber, George T. Reily, J. B. McCubbin, D. H. Young, T. R. Frazer and Dr. Adams, of Fulton. Dr. F. A. Maples, of the Missouri State School at Marshall, opened the discussion on a symposium on "Epidemic Encephalitis." Dinner was served at six o'clock.

Dr. William Engelbach, Santa Barbara, California, formerly of St. Louis, has begun the compilation of his researches into the functions of the endocrine glands. The basis of the work which will probably cover five volumes will be the case records, totaling six hundred, of the patients treated by Dr. Engelbach while in active practice in St. Louis. Publication of these researches has been made possible through the generosity of friends of Dr. Engelbach who have established a fund of \$100,000 to defray the cost of production. One of the donors to the fund is L. H. Wentz, of Ponca City, Oklahoma, whose daughter was a patient of Dr. Engelbach. The other donors are George Owen Knapp, Max Fleischmann, E. Palmer Gavit and Mrs. Charles H. Jackson, Jr., all of Santa Barbara.

Considerable attention has been focused during the last few months on the expansion made at the Missouri Baptist Hospital at St. Louis by the erection of a six-story addition costing \$375,000 to house the bone and joint surgery department of the institution. The new building represents the fourth large expansion of the hospital and increases its bed capacity to 500, making of it the largest private general hospital in the Middle West.

Adequate provision is made to take care of a large number of patients at all times, especially in the special departments devoted to orthopedics, goiter, general surgery, obstetrics, general medicine, mental and physical therapy, meta-



bolic and radiocardiograph, X-ray, and of eye, ear, nose and throat cases. Physicians may refer their patients needing specialized treatment to the hospital's staff or, if they prefer, may call on any reputable physician with recognized medical school qualifications and credentials, to handle the cases with the use of the hospital's facilities.

Dr. B. A. Wilkes for the last nine years has been superintendent of the institution, and was recently elected president-elect of the American Protestant Hospital Association. Under his administration the Missouri Baptist Hospital is conducted on the principle that nothing is too good for the patient, who certainly deserves every attention that will hasten his recovery and alleviate his pain. The kind of service rendered has nothing to do with the amount of money a patient is able to pay. The best service possible is rendered all patients alike, regardless of their financial circumstances. Quarters for patients of course vary in cost according to their location and furnishings. On the same basis that some of us can afford and desire finely furnished homes and some others are happy and comfortable in moderately furnished establishments, just so do folks of wealth require luxuriousness in their hospital appointments, while the great majority are satisfied in clean, quiet, comfortable and homelike surroundings. Because of the size of the hospital there is an abundant supply of accommodations at a wide range of prices. A doctor may be assured that his patient can always obtain suitable and most satisfactory accommodations at a charge commensurate with his ability to pay. The policy is always to give the best of service at a cost as low as is consistent with the type of service rendered.

Dr. Wilkes and the staff extend an invitation to all physicians who find it possible to absent themselves occasionally from their practice, to spend a few days now and then at the hospital to see the wide variety of work performed in the clinics, laboratories and operating rooms, all under the same roof.

That the Missouri Baptist Hospital is rendering a splendid service over a large field is best evidenced by its rapid growth and its reputation among the leading hospitals of this country.

The following articles have been accepted for New and Non-official Remedies:

Curdolac Food Co.

Curdolac Soya Flour

Curdolac Casein-Bran Improved Flour

Curdolac Soya-Bran Flour

Curdolac Breakfast Cereal

Curdolac Casein Compound

Curdolac Wheat-Soya Flour

Curdolac Soya-Cereal Johnny Cake Flour

Curdolac Soya-Bran Breakfast Food

Cutter Laboratory

Ampoule Solution Silver Nitrate, 1 per cent

Typhoid Paratyphoid Prophylactic hospital size package

Polyanaerobic Antitoxin

De Pree Chemical Co.

Sulpharsphenamine—De Pree, 0.5 Gm. Ampules

Sulpharsphenamine—De Pree, 0.9 Gm. Ampules

H. K. Mulford Co.

Gelatin Compound Phenolized—Mulford

Diphtheria Toxoid—Mulford, 30 cc. vial

Erysipelas Streptococcus Antitoxin, Concentrated, 10 cc. syringe

Typho-Bacterin Mixed (Triple Vaccine TAB), thirty 1 cc. vial package

Typho-Serobacterin—Mulford (Sensitized Typhoid Vaccine), 3 syringe package

Normal Horse Serum without Preservative

Alder Pollen Extract—Mulford; Alfalfa

Pollen Extract—Mulford; Annual Sage

Pollen Extract—Mulford; Apple Pollen

Extract—Mulford; Aster Pollen Extract

—Mulford; Blue Beech Pollen Extract—

Mulford; Boneset Pollen Extract—Mul-

ford; Brown Grass Pollen Extract—Mul-

ford; Burning Bush Pollen Extract—

Mulford; Burweed Marsh Elder Pollen

Extract—Mulford; Buttercup Pollen Ex-

tract—Mulford; California Mugwort Pol-

len Extract—Mulford; Careless Weed

Pollen Extract—Mulford; Cedar Tree

Pollen Extract—Mulford; Clover Pollen

Extract—Mulford; Crab Grass Pollen

Extract—Mulford; Dahlia Pollen Ex-

tract—Mulford; Dragon Sage Pollen Ex-

tract—Mulford; Elm Tree Pollen Ex-

tract—Mulford; English Plantain Pollen

Extract—Mulford; Fescue Pollen Ex-

tract—Mulford; Golden Glow Pollen Ex-

tract—Mulford; Hickory Tree Pollen Ex-

tract—Mulford; Milo Maize Pollen Ex-

tract—Mulford; Mock Orange Pollen

Extract—Mulford; Oat Pollen Extract—

Mulford; Olive Pollen Extract—Mul-

ford; Pecan Tree Pollen Extract—Mul-

ford; Pine Tree Pollen Extract—Mul-

ford; Poverty Weed Pollen Extract—

Mulford; Prairie Grass Pollen Extract—

Mulford; Privet Pollen Extract—Mul-

ford; Quack Grass Pollen Extract—Mulford; Rabbit Brush Pollen Extract—Mulford; Rose Pollen Extract—Mulford; Salt Bush Pollen Extract—Mulford; Shad Scale Pollen Extract—Mulford; Sheep Sorrel Pollen Extract—Mulford; Slender Ragweed Pollen Extract—Mulford; Spring Amaranth Pollen Extract—Mulford; Sudan Grass Pollen Extract—Mulford; Velvet Grass Pollen Extract—Mulford; Western Giant Ragweed Pollen Extract—Mulford; Wheat Pollen Extract—Mulford; Wild Oats Pollen Extract—Mulford; Willow Tree Pollen Extract—Mulford; Winter Grass Pollen Extract—Mulford; Yellow Foxtail Grass Pollen Extract—Mulford

National Drug Co.

Diphtheria Toxoid

Thompson's Malted Milk Co., Inc.

Thompson's Maltose and Dextrin

## OBITUARY

DR. HERMAN L. WICHMANN

1863-1929

Another of St. Louis' well known physicians was taken away on July 13, 1929, when Dr. Herman L. Wichmann was laid to rest.

Dr. Wichmann was born February 1, 1863, the son of Dr. Herman Wichmann, of Rock Island, Illinois, later of St. Louis, where he was one of the leading practitioners.

When five years old the deceased came to St. Louis with his parents who located on Seventh Street. Here the boy grew up, receiving his elementary training in the Barry Street Lutheran Parochial School. In 1888 the young man was graduated from the Medical Department of Washington University, receiving his M.D. degree. As was customary at that time, he studied pharmacy as a preliminary step to the study of medicine and was graduated from the St. Louis College of Pharmacy a few years prior to his entrance into the medical school.

The departed had an extensive practice in St. Louis and was connected with several local institutions. He was a member of the staff at the Lutheran Hospital, and for many years was house physician of the old Lutheran Altenheim formerly on Lafayette Avenue. He was a member of the St. Louis Medical Society and a Fellow of the American Medical Association.

By the profession he was recognized as a most able internist. His fine clinical sense and

judgment at the bedside in the home, combined with a profound knowledge of pharmacy, marked him as an authoritative consultant sought by many. In practicing his profession amongst his people he served them not only as physician, but as fatherly counselor and adviser.

Dr. Wichmann enjoyed good health throughout the greater part of his life; however, in the last few years those closer to him noticed that his strength was beginning to fail. After a lingering illness brought about by cardiac asthma, with chronic nephritis as a complicating factor, he passed away on July 13, attaining the age of 63 years, 5 months, 13 days.

Followed by many of his colleagues and a great host of friends he was laid to rest with services conducted by the pastor of the Redeemer Evangelical Lutheran Church, of which he was a member. He was twice married. His first wife, Ida, nee Kiel, died in 1913. His second wife, Pearl, nee Wilson McCoy, and an adopted daughter and one son, Herman, Jr., survive him.

Many were the floral offerings tenderly laid on his grave by the friends privileged to cherish his memory.—C. E. M., in the *Bulletin of St. Louis Medical Society*.

## SOCIETY PROCEEDINGS

### COUNTY SOCIETY HONOR ROLL FOR 1930

(UNDER THIS HEAD WE LIST SOCIETIES WHICH  
HAVE PAID DUES FOR ALL THEIR MEMBERS)

#### HONOR ROLL

Madison County Medical Society, December 16, 1929.

### TWENTY-SIXTH COUNCILOR DISTRICT MEETING

The Twenty-Sixth Councilor District, composed of Crawford, Dent, Laclede, Phelps and Pulaski Counties, met at a banquet at the Baker Hotel, Waynesville, November 12, at 6:00 p. m. The scientific meeting was held in the courthouse. Dr. W. H. Breuer, St. James, is Councilor of the district. The following were present: Dr. W. C. Gayler, St. Louis, president-elect of the State Association, Dr. Emmett P. North, St. Louis, and Dr. Alphonse McMahon, St. Louis, senior instructor, St. Louis University School of Medicine, all sent by the Postgraduate Committee of the State Association; Drs. S. L. Baysinger, W. J. Durant and wife, G. W. Horrom, A. S. McFarland, C. J. Millar, S. L. Mitchell and W. S. Smith, of Rolla; Drs. J. M. Billings, J. L. Benage and wife, of Lebanon; Dr. R. E. Breuer, Newburg; Dr. W. H. Breuer, St. James; Drs. C. E. Carleton



and W. O. Pool, of Stoutland; Dr. A. J. Crider, Dixon; Drs. R. E. Howlett, H. C. Murphy and E. A. Oliver, Richland; Dr. O. H. Jones, Vienna; Dr. W. J. Sell and wife, of Crocker; Dr. C. A. Talbot and wife, of Waynesville; Dr. R. B. Tilley and wife, of Plato.

Dr. W. C. Gayler, St. Louis, read an interesting paper on "Obstetrics."

"Endocrinology" was the subject of a talk given by Dr. Alphonse McMahon, St. Louis.

Dr. Emmett P. North, St. Louis, addressed the Society on "Traumatic Eye Injuries."

This was an exceptionally good meeting, and every one present was well pleased with the speakers and their presentations.

The next meeting will be held on January 14 at the Bell Hotel, Waynesville.

C. A. TALBOT, M.D., Secretary.

### BOONE COUNTY MEDICAL SOCIETY

The December 3 meeting of the Boone County Medical Society was preceded by a banquet at the Daniel Boone Tavern. Following the banquet Judge North Todd Gentry, Columbia, gave a talk on "Privileged Communications."

The meeting was called to order by Dr. W. R. Shaefer, Columbia. The minutes of the previous meeting were read and approved.

Committee reports: As a member of the committee to investigate the Pioneer Adjusting Company, Dr. D. A. Robnett, Columbia, reported that as far as he could ascertain the company is a reputable concern.

A committee, composed of Drs. E. D. Baskett, S. D. Smith, C. M. Sneed and H. P. Muir, of Columbia, was appointed to inaugurate a plan whereby, through a central office, the physicians of Columbia can call and obtain the financial rating, or indebtedness to other doctors, of a certain individual, and to report at the next meeting.

Dr. F. C. Suggett, Columbia, invited the members to assist in holding a baby clinic at the courthouse in Columbia. It was moved and seconded that Dr. Suggett's invitation be referred to the committee on lay projects and organizations. The motion was carried.

A report was made by the secretary-treasurer, which was accepted. A committee was appointed to audit the books.

Dr. G. A. Bradford, Columbia, moved that flowers and a note of sympathy be sent to Dr. F. B. Williamson, Columbia.

Dr. M. Pinson Neal, Columbia, moved that the present officers be retained until January 1, 1930. The motion was seconded and carried.

The new officers elected for 1930 are: President, Dr. W. O. Fischer, Columbia; vice president, Dr. W. E. Belden, Columbia; secretary-treasurer, Dr. H. P. Muir, Columbia; delegate, Dr. Frank G. Nifong, Columbia; alternate, Dr. D. A. Robnett, Columbia.

Dr. D. A. Robnett was reelected a member of the Auxiliary Committee on Public Policy.

H. P. MUIR, M.D., Secretary.

### CLAY COUNTY MEDICAL SOCIETY

The Clay County Medical Society enters its seventy-fifth year with the advent of 1930. Since the Civil War it has had just three secretaries, namely, Drs. J. H. Rothwell and F. H. Matthews, Liberty,

and Dr. J. J. Gaines, Excelsior Springs. All were present at our Liberty meeting on December 5.

After a daintily prepared dinner at Liberty's "Party Place" dining room, Dr. E. T. Gibson, Kansas City, talked for one hour on "Emotional States and Their Effects on the Human Stomach." He believes that at least twenty per cent of our gastric sufferers may be traced to an emotional state which set up the difficulty, often of most dire distress. His treatment was, therefore, to a great degree suggestive there being no pathology within the organ complained of. All present concurred in the Doctor's conclusions. A full discussion followed with unanimous appreciation for the thoughtful effort of the speaker who talked rather than lectured, almost wholly without notes.

Officers elected for 1930 were: President, Dr. E. C. Robichaux, Excelsior Springs; vice president, Dr. R. E. Sevier, Liberty; secretary-treasurer, Dr. J. J. Gaines, Excelsior Springs, reelected; delegate, Dr. Y. D. Craven, Excelsior Springs; alternate, Dr. J. H. Rothwell, Liberty; censor for three years, Dr. J. E. Baird, Excelsior Springs.

Our treasury is in good shape; only three members were delinquent at the time of the meeting, one of whom has since paid.

Dr. Spence Redman, Platte City, our universally loved Councilor, and secretary of Platte County Medical Society, addressed the meeting just before it closed. He complimented the Clay County Medical Society for its fraternal spirit, and said he loved to attend its meetings.

Many physicians might envy Dr. Redman for his zeal; the medical profession is a part of his religion, his soul; and when he dies it will be in the harness. All honor to him.

J. J. GAINES, M.D., Secretary.

### COLE COUNTY MEDICAL SOCIETY

The Cole County Medical Society has elected the following officers for the ensuing year: President, Dr. J. T. Leslie, Jefferson City; vice president, Dr. M. R. Aldridge, Jefferson City; secretary-treasurer, Dr. James A. Hill, Jefferson City; delegate, Dr. W. A. Clark, Jefferson City; alternate, Dr. S. P. Howard, Jefferson City.

Dr. J. G. Bruce, Jefferson City, was elected a member of the board of censors for three years. The other two members are Dr. S. P. Howard, Jefferson City, chairman (term expires, 1931); Dr. L. D. Enloe, Jefferson City (term expires, 1932).

JAMES A. HILL, M.D., Secretary.

### GREENE COUNTY MEDICAL SOCIETY

The regular meeting of the Greene County Medical Society was held Friday evening, December 13, 1929, in the Springfield Public Library. The following members were present: Drs. G. D. Callaway, E. Loyd Cartwright, W. C. Cheek, Paul F. Cole, Lee Cox, W. A. Delzell, M. T. Edmondson, S. F. Freeman, Robert Glynn, W. E. Handley, O. C. Horst, Arthur D. Knabb, James F. Leslie, J. W. Love, A. E. Potter, C. W. Russell, Wallis Smith, M. C. Stone, J. N. Wakeman, John Williams, Jr., of Springfield; Dr. B. Frank Windle, Bois D'Arc. The minutes of the previous meeting were read and approved.

This being the date for the annual election of officers, there was no scientific program. The follow-

ing were elected: President, Dr. Robert Glynn, Springfield; vice president, Dr. O. C. Horst, Springfield; secretary, Dr. J. N. Wakeman, Springfield; treasurer, Dr. W. E. Handley, Springfield; board of censors, Dr. W. A. Cheek, Springfield; delegate, Dr. J. W. Love, Springfield.

The meeting adjourned at 10:30 p. m.

J. N. WAKEMAN, M.D., Secretary.

### JASPER COUNTY MEDICAL SOCIETY

The regular meeting of the Jasper County Medical Society was held November 19, 1929, at 8:00 p. m. in the Joplin Y. M. C. A. rooms, Dr. E. D. Hatcher, Carthage, president, presiding. There were eighteen members and fifteen visitors present. The minutes of the last meeting were read and approved.

Dr. A. C. Clasen, Kansas City, addressed the Society on "Gastric Symptoms in Constitutional Disturbances." He showed lantern slides to illustrate the different types of patients having constitutional unbalance.

Dr. Clasen's subject was well discussed.

#### Meeting of November 26, 1929

The Society met November 26, 1929, at 8:00 p. m. in the Joplin Y. M. C. A. rooms with Dr. E. D. Hatcher, Carthage, in the chair. There were eighteen members and six visitors present. The minutes of the last meeting were read and approved.

The chair appointed Drs. C. C. Cummings, R. M. James and R. L. Neff, of Joplin, to draft resolutions on the death of Dr. A. R. Snyder, who passed away November 24, 1929.

Dr. F. V. Meriwether, of the United States Public Health Service, Picher, Oklahoma, talked to the Society on "The Differential Diagnosis of Pulmonary Tuberculosis and Silicosis." The subject was well discussed and enjoyed by all.

The applications of Drs. K. B. Huffman and D. R. Hill for membership were read and referred to the board of censors.

#### Meeting of December 3, 1929

The Society met December 3, 1929, at 8:00 p. m. in the Joplin Y. M. C. A. rooms, with twenty-five members and two visitors present. The minutes of the last meeting were read and approved.

The following resolution on the death of Dr. A. R. Snyder was read by the resolutions committee:

The Jasper County Medical Society pauses to record upon its minutes the passing of a charter member and past president, Dr. Andrew R. Snyder, who came to Joplin when it was in the making of a city and gave his services to this community, fresh from the best medical schools of Michigan and hospitals of New York. He was a pioneer and labored among the people of this mining district for forty years, working skilfully, without the aid of hospitals and nurses, in a new field. Joplin owes him honorable mention as one who blazed the trail for the better and more modern facilities of today, therefore, be it

*Resolved*, That this body of physicians extend to his faithful wife who stood by him in these years of labor its deepest sympathy in her bereavement.

R. M. JAMES, M.D.  
R. L. NEFF, M.D.  
C. C. CUMMINGS, M.D.  
Committee

On motion the resolution was accepted, one copy to be made a permanent record of the Society and one to be sent to THE JOURNAL of the State Association.

This being the date for the annual election of officers, the chair appointed Drs. H. A. Leaming and V. E. Kenney as tellers. As a result of the ballot the following were elected: President, Dr. Charles

T. Reid, Joplin; vice president, Dr. H. L. Wilbur, Joplin; secretary, Dr. Otto Blanke, Joplin; treasurer, Dr. M. C. Shelton, Joplin; censor, Dr. J. L. Sims, Joplin; delegates, Drs. L. C. Chenoweth and E. R. Hornback, of Joplin; alternates, Dr. L. B. Clinton, Carthage; Dr. J. W. Barson, Joplin. The new officers will begin their duties on January 7, 1930.

Dr. O. Jason Dixon, Kansas City, gave a very interesting talk on "Fatal Infections of the Face and Neck."

#### Meeting of December 10, 1929

The December 10 meeting was held in the Joplin Y. M. C. A. rooms, with the president, Dr. E. D. Hatcher, Carthage, in the chair. The minutes of the last meeting were read and approved. There were twenty-five members and ten visitors present.

The board of censors reported favorably on the application of Drs. D. R. Hill and K. B. Huffman, of Joplin, and on ballot they were elected to membership.

The president appointed Drs. H. L. Wilbur and B. E. De Tar, of Joplin, to arrange for the banquet and entertainment for the meeting of January 7.

Dr. John G. Hayden, Kansas City, read a paper on "The Treatment of Varicose Veins by Injection." He presented a patient and demonstrated his technic by injecting several veins, then went thoroughly into the subject and showed some lantern slides.

H. L. WILBUR, M.D., Secretary.

### LAWRENCE-STONE COUNTY MEDICAL SOCIETY

The Lawrence-Stone County Medical Society met in the city hall of Aurora, December 3, 1929.

Drs. J. B. Stokes and Scott P. Child, of Mount Vernon, were elected to membership by transfer from Vernon-Cedar County Medical Society.

Dr. D. W. Tripodi, Mount Vernon, was also elected a member.

The following officers were elected for 1930: President, Dr. J. Will Smith, Verona; vice president, Dr. E. E. Glenn, Mount Vernon; secretary-treasurer, Dr. R. D. Cowan, Aurora; censor, Dr. C. W. Shelton, Mount Vernon; delegate, Dr. R. D. Cowan, Aurora; alternate, Dr. J. B. Stokes, Mount Vernon.

The next meeting will be in the form of a banquet to be held Tuesday evening, March 4, 1930, at Aurora.

R. D. COWAN, M.D., Secretary.

### MARION COUNTY MEDICAL SOCIETY

The Marion County Medical Society held a very interesting meeting at Hannibal, Friday, November 1, 1929. In the afternoon, from 4:30 until 6:30, a clinic on heart disease was given at St. Elizabeth's Hospital under the direction of Dr. C. C. Conover, Kansas City. Dr. Conover was sent to us through the courtesy of the Postgraduate Committee of the State Association. There was a large number of out of town guests present.

In the evening, a banquet was enjoyed at the Mark Twain Hotel.

At the regular meeting which followed the banquet, Dr. Conover gave an address on "Heart Disease, With Particular Emphasis on the Changes in the Coronary Vessels as Age Progresses," illustrated with lantern slides.

HOWARD B. GOODRICH, M.D., Secretary.



### PIKE COUNTY MEDICAL SOCIETY

The Pike County Medical Society met at the Pike County Hospital, Louisiana, December 3, 1929, Dr. J. W. Crewdson, Louisiana, presiding. Dinner was served at 7:00 p. m. by the hospital staff. We had as our guests Drs. Charles Hugh Neilson and A. P. Munsch, of St. Louis, who were sent to us by the Postgraduate Committee of the State Association.

The following officers were elected for 1930: President, Dr. T. Hurley Wilcoxon, Bowling Green; first vice president, Dr. E. M. Bartlett, Clarksville; second vice president, Dr. J. E. Bankhead, Clarksville; secretary-treasurer, Dr. E. A. Cunningham, Louisiana; delegate, Dr. M. O. Biggs, Louisiana; alternate, Dr. T. G. Hetherlin, Louisiana.

Following the election of officers we had the extreme pleasure of hearing from Drs. Neilson and Munsch.

Dr. Neilson gave a most interesting and comprehensive talk on "General Diagnosis." He covered the subject very thoroughly, illustrating points brought out by individual cases. The following points were established: (1) Hard work; under this was included extensive reading and attendance at meetings. (2) Thoroughness; complete and thorough examination and history taking were emphasized. (3) Studying the individual; people react differently to the same amount of pain and disease. (4) Similarity of organic diseases. (5) Common sense.

Dr. Munsch read a paper on "Acute Respiratory Infections." The paper was entirely inclusive, possible infections being traced from the anterior nares down to the terminal bronchioles. In discussing pneumonia, Dr. Munsch called attention to the important condition of oxygen deficiency in the blood, thereby giving rise to rapid pulse and rapid breathing, and also mentioned glycogen deficiency. He advocated giving alkalies and glucose, but cautioned not to over-alkalize. Diathermy was given an important place in the treatment.

The members feel that they have been very much benefited by the visit of the St. Louis physicians, and a unanimous vote of thanks was offered them for their willingness in coming to Louisiana.

The next meeting will be January 2, 1930.

E. A. CUNNINGHAM, M.D., Secretary.

### RANDOLPH-MONROE COUNTY MEDICAL SOCIETY

The Randolph-Monroe County Medical Society has elected the following officers to serve during 1930: President, Dr. L. O. Nickell, Moberly; vice president, Dr. H. C. Griffith, Moberly; secretary-treasurer, Dr. T. S. Fleming, Moberly; delegate, Dr. C. H. Dixon, Moberly; alternate, Dr. F. L. McCormick, Moberly; censor (for three years), Dr. O. O. Ash, Moberly; censor (for two years), Dr. C. K. Dutton, Moberly.

C. H. DIXON, M.D., Secretary.

### SOUTHWEST MISSOURI MEDICAL SOCIETY

The Fall Meeting of the Southwest Missouri Medical Society, the oldest district society in the State, organized in 1874, met at the Kentwood Arms Hotel, Springfield, November 14-15, 1929, with the president, Dr. Wilbur Smith, Springfield, in the chair.

A special feature of the afternoon session of the first day was the quality and excellence of the scientific addresses made by speakers sent to the meeting through the courtesy of the Postgraduate Committee of the State Association.

Dr. Emmett P. North, St. Louis, gave a most excellent clinical lecture, with case reports, on "Traumatic Eye Surgery," in which unusual interest was manifested by all hearers.

This was followed by a lecture on "The Diagnosis and Treatment of Cancer," illustrated with lantern slides, by Dr. William E. Leighton, St. Louis, which aroused such interest that a motion was made, seconded and unanimously carried, inviting Dr. Leighton to return and repeat his talk before a public audience at the spring meeting next year.

While the Society was honored and gratified by the visit of the President of the State Association, Dr. T. W. Cotton, Van Buren, many expressions of regret were heard that the President-Elect, Dr. W. C. Gayler, St. Louis, and the faithful Secretary of the State Association, Dr. E. J. Goodwin, St. Louis, were prevented by other engagements from attending.

The usual pleasant feature of the meeting was the annual banquet held in the dining room of the Kentwood Arms Hotel, at which covers were laid for eighty-six members and guests.

Short talks on timely topics were made by Dr. T. W. Cotton, the President of the State Association; Dr. W. G. Patton, St. Louis, representing the President-Elect; Dr. E. P. North, St. Louis, and Dr. H. L. Kerr, Crane, president of the State Board of Health.

The principal address at the banquet was made by Dr. James E. Cox, professor of English, Drury College, Springfield, on the subject of "Genius and Insanity," in which numerous examples of celebrated English literary characters, some of whom were members of the medical profession, were cited as exhibiting at times certain erratic forms of conduct and behavior apparently simulating types of mental aberration which alternated with periods of superlatively meritorious literary productions.

The scientific program included also the following papers by Springfield physicians: "Hemorrhage After Tonsillectomy," J. P. McCann. "Functional Disturbance of the Digestive Tract," Francis B. Camp. "The Vitamins with Special Reference to Infant Feeding," Urban J. Busiek. "The Story of Tumors of the Breast from the Standpoint of the General Practitioner and Surgeon," W. A. Delzell. "Benign Tumors of the Breast," E. M. Fessenden. "The Results in Thyrocardiacs after Operation," F. T. H'Doubler. "Surgical Indications for and End-Results of Operations for Gastric and Duodenal Ulcer," E. C. Roseberry. "Practical Methods of Determination of Liver Function," Leslie R. Webb. "Puerperal Fever," Joseph D. James.

Among those registered for attendance at the meeting from out of town were: T. W. Cotton, Van Buren; Emmett P. North, W. E. Leighton and W. G. Patton, of St. Louis; J. C. Blackwood and J. H. Fowler, of Harrison, Ark.; E. L. Beal and H. G. Frame, of Republic; C. Rhea, Thayer; Chas. H. McHaffie, Ash Grove; Everett A. Oliver, Richland; J. A. Fuson, Mansfield; John W. Good, Fordland; R. M. Norman, Ava; W. A. Atkins, Rogersville; E. E. Wade, Clever; J. H. Wade, Ozark; E. E. Glenn, Scott P. Childs and D. W. Tripodi, of Mount Vernon; L. L. Henson, Fair Grove; H. L. Kerr,

Crane; F. H. Brown, Billings; R. F. Cheatham, Diamond; J. F. Roberts, Bolivar; E. C. Wittwer and T. H. Brand, of Mountain Grove; G. T. Myers, Macks Creek; E. G. Beers, Seymour; J. C. B. Davis, Willow Springs; W. D. Delzell, Rogersville; R. R. Farthing, Ozark; S. A. Newman, Cassville; W. M. West, Monett; H. J. Wise, Sparta.

The officers elected for the ensuing year were: President, Dr. J. C. B. Davis, Willow Springs; first vice president, Dr. Arthur D. Knabb, Springfield; second vice president, Dr. A. C. Ames, Walnut Grove; recording secretary, Dr. W. L. Turner, Springfield; treasurer, Lee Cox, Springfield; corresponding secretary, Jos. W. Love, Springfield.

J. W. LOVE, M.D., Corresponding Secretary.

### ST. LOUIS COUNTY MEDICAL SOCIETY

The St. Louis County Medical Society held its annual banquet at Van Horn's Farm on Lay Road, St. Louis County, Wednesday evening, December 11, 1929, at 8:00 p. m. The following members were present: Drs. C. P. Dyer, F. L. Finley, R. L. Foster, Garnett Jones, John D. Haywood, Otto W. Koch, L. C. Obrock, John A. Sterling and J. D. Thurmon, St. Louis; Drs. John O'Connell, J. A. Prichard and Roy A. Walther, Overland; Drs. Irene M. Blanchard, H. N. Corley, A. C. Hofsommer, C. C. Irick, F. C. E. Kuhlmann, Wm. F. O'Malley and A. W. Westrup, Webster Groves; Drs. Harry Greensfelder and John H. Sutter, University City; Drs. E. O. Breckenridge, W. H. Townsend and E. E. Tremain, Maplewood; E. L. Fredericks, Manchester; R. B. Denny, Creve Coeur; F. P. Knabb, Valley Park; R. H. Trumpour, Kirkwood; Richard Paddock, Clayton. Visitors: Drs. E. A. Babler, M. L. Custer and L. P. Fitzgerald, of St. Louis. Most of the doctors brought their wives, making a total of sixty present.

After enjoying a fine turkey dinner, the members adjourned to hold their regular meeting and election of officers. The meeting was called to order by Dr. A. W. Westrup, Webster Groves, president.

Dr. J. H. Sutter, University City, moved that Dr. E. M. Schmidt, St. Louis, be elected a member by transfer from the St. Louis Society. Motion seconded by Dr. Garnett Jones, St. Louis, and carried.

On motion by Dr. C. P. Dyer, St. Louis, seconded and carried, Dr. Lee Dorsett, St. Louis, was elected a corresponding member.

Dr. C. P. Dyer, seconded by Dr. W. F. O'Malley, nominated Dr. R. B. Denny as president. Dr. J. D. Thurmon moved that the nominations be closed, and Dr. Roy A. Walther added that the secretary cast the ballot for Dr. Denny. Motion seconded by Dr. W. F. O'Malley and carried. Dr. Denny was declared elected president.

Dr. C. C. Irick, seconded by Dr. John O'Connell, nominated Dr. C. P. Dyer for vice president. Dr. W. H. Townsend moved that the secretary cast the ballot for Dr. Dyer as vice president. Seconded by Dr. W. F. O'Malley and carried unanimously. Dr. Dyer was declared elected vice president.

Dr. W. H. Townsend, seconded by Dr. C. P. Dyer, nominated Dr. E. E. Tremain for secretary-treasurer. Dr. Otto W. Koch moved that the president cast a unanimous ballot for Dr.

Tremain for secretary-treasurer. Seconded and carried unanimously, and Dr. Tremain was declared elected secretary-treasurer.

Dr. Garnett Jones, seconded by Dr. C. C. Irick, nominated Dr. E. O. Breckenridge as censor to fill the vacancy left by Dr. W. F. O'Malley. Dr. Irick moved that the secretary cast a unanimous ballot for Dr. Breckenridge for censor. Seconded by Dr. R. B. Denny and carried. Dr. Breckenridge was elected censor.

Censors committee: Dr. J. H. Armstrong, Kirkwood; Dr. R. B. Denny, Creve Coeur; and Dr. E. O. Breckenridge, Maplewood.

Following the election of officers the members adjourned to the main dining room and dance floor.

E. E. TREMAIN, M.D., Secretary.

### ST. FRANCOIS-IRON COUNTY MEDICAL SOCIETY

The November 26 meeting of the St. Francois-Iron County Medical Society held at the Bonne Terre Hospital was very interesting.

Dr. R. M. Klemme, St. Louis, read a very instructive paper on "Brain Tumor," and illustrated his subject with lantern slides.

Dr. Klemme's paper was discussed by Drs. Reuben Appleberry and E. F. Hoctor, of Farmington.

Dr. O. A. Smith, Farmington, discussed "The Ocular Findings in Intracranial Conditions."

Dr. A. L. Evans, Bonne Terre, who was scheduled to read a paper on "Infant Care" was called from the meeting. He will present his paper at some future date.

Dr. George Gay, Ironton, was elected a junior member.

There will be no meeting of the Society in December. The January meeting will be held at Farmington at which time we expect to have two speakers through the courtesy of the Postgraduate Committee of the State Association.

RALF HANKS, M.D., Secretary.

## WOMAN'S AUXILIARY

### OFFICERS 1929-30

President, Mrs. M. P. Ravenel, Columbia.

President-Elect, Mrs. A. W. McAlester, Kansas City.

1st Vice President, Mrs. U. J. Busiek, Springfield.

2nd Vice President, Mrs. James F. Owens, St. Joseph.

3rd Vice President, Mrs. H. C. Brashear, Mexico.

4th Vice President, Mrs. L. G. McCutchen, St. Louis.

Corresponding Secretary, Mrs. C. M. Sneed, Columbia.

Recording Secretary, Mrs. David S. Long, Harrisonville.

Treasurer, Mrs. R. C. Haynes, Marshall.

Auditor, Mrs. C. T. Ryland, Lexington.

Directors (2 years): Mrs. W. W. Ford, Gordonville; Mrs. Harry F. Parker, Warrensburg; Mrs. F. H. Spencer, St. Joseph; Mrs. C. C. Cummings, Joplin; Mrs. Raymond Spivy, St. Louis. (1 year): Mrs. T. S. Fleming, Moberly; Mrs. S. F. Freeman, Springfield; Mrs. Robert McE. Schaffler, Kansas City; Mrs. Hudson Talbott, St. Louis; Mrs. J. J. Gaines, Excelsior Springs.



## SCHOLARSHIP FUND

Our Scholarship Fund has \$54.10 to its credit. Now that we have enjoyed a very Merry Christmas and have entered the New Year, we must remember that 1930 holds privileges and duties for us which we should not neglect. Before May 15 our obligations should be met. Each auxiliary knows whether its quota to the Scholarship Fund has been filled or whether it is still to be met. We have prospered in 1929. Surely we will do as well or better in 1930. The following contributions to the Fund have been received:

County	Amount
Johnson .....	\$50.00
St. Louis .....	9.50
Boone .....	25.00
Saline .....	25.00
Cole .....	7.20
Cass .....	11.20
Linn .....	6.40
Boone (Special gift).....	17.00
Greene .....	30.80
Audrain .....	10.00
Lafayette .....	12.00
Total .....	\$204.10
Check to Mr. Schmidtke.....	150.00
Balance .....	\$54.10

## MISCELLANY

## MEDICAL PUBLICITY BUREAU

## Physicians Get Telegrams on a "Movement to End Spitting in Public Places"

During the past two weeks many physicians and at least some city Chambers of Commerce have received telegrams (day-letters), reading as follows:

"Will you join with other leading physicians in country-wide movement to end spitting in public places and reduce diseases spread in this manner by telegraphing us, day-letter collect, fifty-word statement in connection with this objectionable habit? We propose using this statement in symposium in the press of the country for the benefit of the lay public. We feel your standing as an authority in your community will give added value to your statement.

MEDICAL PUBLICITY BUREAU,  
Room 305, Eighty East 11th Street, N. Y."

As a result of these telegrams, the Bureau of Investigation has received a number of inquiries asking for information regarding the "Medical Publicity Bureau" and the possible motive behind the scheme. There was in the files of the A. M. A. Bureau of investigation a record of one Medical Publicity Bureau, which in 1924 was operating from 13 Astor Place, New York, and had for its Director one Emilie Recht. There was also in our files a record of a Medical Publicity Bureau at 12 Nathan Davis Place, New York City. There was no record, however, of any organization of this name at 80 East 11th Street, New York City. In order to obtain information, a telegram was sent to the National Better Business Bureau at New York City, asking them to find out, if it were possible, who or what was behind this concern. From information received from the National Better Business Bureau, it appears that Room 305, 80 East 11th Street, New York City, carries a sign on the door reading: "St. Dennis Offices Corporation, Raymond Service, Inc., Henry Bern." Inquiry brought the statement that the people at this address were, in this instance, simply functioning mechanically in sending out the telegrams and tabulating the replies, and that the headquarters of the Medical Publicity Bureau were at 12 Nathan Davis Place. The National Better Business Bureau reported further, that the Medical Publicity Bureau acts as a medical advertising agency for drug houses and attempts to procure information by circularizing questionnaires and interpreting data; also, that Dr. James Macbeth and Dr. William J. Robinson were the principals and the Publicity Bureau was affiliated with the "American Society of Medical History," whose official organ is *Medical Life*.

It was learned also that in 1925, an investigation was made of the Medical Publicity Bureau, which at that time was located at 13 Astor Place, Manhattan. At that time it was stated that the Bureau was incorporated under the laws of the State of New York; that James Macbeth was president and Emilie Recht, of 12 Nathan Davis Place, secretary and treasurer. Macbeth was said to have declared that (at that time) he had been in the United States for four years; that he held a degree in medicine from the Aberdeen (Scotland) University, and that the Medical Publicity Bureau was acting as a medical advertising agency. The report further said that Dr. William J. Robinson, of the *Critic and Guide*, was the principal stockholder, with Miss Recht (also a large stockholder), business manager of *Medical Life*. At that time, too, it was stated that the Medical Publicity Bureau did medical-copy advertising for drug houses and surgical supply companies and procured information by circulating questionnaires and interpreting data.

With the foregoing information furnished by the National Better Business Bureau, the files of the Bureau of Investigation of the American Medical Association were looked into, and it was found that, in 1924, the Medical Publicity Bureau—then functioning from 13 Astor Place, New York City—sent out a questionnaire in the interests of Ivory Soap; in 1925, the same Bureau was circularizing physicians on the dietetic value of gelatin; in 1926, a physician wrote to THE JOURNAL, stating that he had received a letter from the Medical Publicity Bureau of 12 Nathan Place, asking for his endorsement of a certain kind of shoe.

A study of the advertising pages of *Medical Life* might give one the impression that the nostrums that are rejected by THE JOURNAL of the American Medical Association and the various state medical journals and other medical journals that follow the standards laid down by the Council on Pharmacy and Chemistry can find happy haven in the advertising pages of *Medical Life*. Such nostrums as "Sal Hepatica," "Sanmetto," "Pepto-Mangan," "Ergoapiol," "Cactina Pillets," "Neurilla," "Peacock's Bromides," "Chionia," "Abican," "Pineoleum," "Angostura Bitters," "Antiphlogistine," "Fellows' Syrup," etc., etc., are to be found in a recent issue of *Medical Life*.

*Medical Life* also contained a full-page ad of the "Lucky Strike Cigarette" and one is led to wonder whether the present telegram regarding spitting has any bearing on the American Tobacco Company's latest campaign, emphasizing the alleged fact that "Cremo Cigars" are not spat on in the process of manufacture! It seems hardly credible that an advertising agency would go to the expense of sending out telegraphic day-letters and paying for telegraphic replies solely in the interest of pure science!—J. A. M. A., Dec. 7, 1929.

## Books for Leisure Moments

Two of the most remarkable books which it has been the privilege of this reviewer to read for many a day are by John Rathbone Oliver, (The Macmillan Company, New York) entitled "Fear" and "Victim and Victor." The titles do not do them full justice as they cannot convey any adequate impression of the tremendous amount of ground covered in the contents of the two books.

The two volumes are not related in any way except that they both deal with the general subject of mental disease and its treatment. In general, they are excursions into the depths of psychiatry and psychotherapy. Although neither pretends to be a novel, both present all the characteristics of one. At first glance they would appear to be prosy and uninteresting; but after reading just a few pages one realizes that here are classics indeed—distinctly one-sitting books. They contain so much of human interest, so much of good common sense, so much of practical and everyday human life, that the reader unconsciously finds much of his own personal experience narrated in striking fashion—and herein lies the appeal of the two books. We are not surprised to see that both volumes have enjoyed numerous printings and wide circulation.

The author is a physician who bears the degree of A.B. from Harvard and M.D. from Innsbruck. Moreover, he is a doctor of wide human experience who evidently believes that psychotherapy has a fundamental place in the treatment of the ills of the human constitution; and being a very wise and sensible doctor he also realizes that religious faith is the only sure remedy, if sincerely practiced, for many prevalent mental diseases. This fact alone demonstrates him to be a man of great human experience, and in his books he has sounded the deepest depths of human nature.

"Fear" purports to be "An Autobiography of James Edwards." James Edwards is a fictitious character representing the quite common type of successful, busy, and semi-egotistical business man whom the present century delights to enthrone upon a pedestal of somewhat unmerited prestige. He is a man submerged in his work and inordinately proud of the fact that his own picture appears upon the particular product which bears his name in the commercial world. Being submerged in his work, of course he is not a family man—not as a matter of fact, for the members of his family have come to look upon him as a sort of economic necessity rather than a loving parent. His trouble starts one day when his insurance company rejects his application for more life insurance. He did not want the insurance in the first place, but, like every successful business man, he allowed himself to be talked into an increase by a salesman who knew his business; then, to the surprise of both, the insurance company's doctor refused to pass him. Immediately he is assailed by all sorts of fears—great fears, little fears, brazen fears, imaginary fears—all of which do their diabolical work so thoroughly that every phase of his life is affected. A genuine fear-neurosis ensues which affects the functions of his physical body and brings on high blood pressure.

Through the influence of his son he finally consents to consult an eminent specialist. There he is given a thorough, up-to-date, twentieth-century physical examination, as a result of which the emi-

nent specialist persuades him to enter a nursing home. There he comes under the supervision of a genuine psychiatrist who is indeed a remarkable character. The psychiatrist is known throughout the volume as "The Fear Hunter." Together they plumb the depths of human emotion as they make their way, not laboriously, but with thrilling adventures, through such hidden by-ways as "The Origin of Fear," "The Mechanisms of Fear," "The Results of Fear," and "The Torments of Fear." These chapters are not filled with dry discourses on psychological subjects—on the contrary, they are alive with emotion and passion.

In the nursing home the fear-poisoned patient comes in contact with others of like affliction, the most interesting case being that of a woman, the widow of a missionary, who resorts to suicide before she finds deliverance from the phantom which overshadows her life. Of course the reactions of these various subordinate characters upon the mental processes of James Edwards form some of the most illuminating chapters of the book.

The "Fear Hunter" is, we repeat, an unusual character. There is none other like him in literature. How that, little by little, he leads Edwards back from a pit of his own digging, through suggestion, through the reading of proper literature, through various occupations which are given the patient, such as basket weaving and book-binding; and how he finally brings the patient to himself and plants his feet firmly upon the solid rock of religious practice—"the tabernacle of the Lord"; all this is told with breath-taking interest.

A well known critic has rightly said: "I predict that the reading of this book by all those who should read it will decrease the consumption of pills by one fourth." The book will do more than this—it will reveal any reader to himself and thus enable him to solve some very perplexing problems of life.

The other book, "Victim and Victor," is in many ways superior to "Fear." It delves into the same general realm but from a totally different point of view. It is the story of Michael Mann, who is consecrated to the Episcopal priesthood and who, by protecting his higher ecclesiastical prelate, himself a victim of petty church politics, brings upon himself the sentence of deposition. Michael Mann serves a prison sentence; even in the prison he demonstrates uncanny psychological insight and frustrates an attempted jail delivery.

The story of Mann's assumption of clerical orders, his subsequent deposition, followed by his long, hopeless struggle for readmission to the fold—a struggle waged against Pharisaical standards of modern "churchanity"—is all told with an intensity of feeling that will bring genuine tears to the eyes of the reader.

Mann, though failing to get a hearing from his ecclesiastical superiors, establishes a combined home and chapel known as "Refuge." There he brings to bear upon the poor and unfortunate, even the criminal classes, all the marvelous powers which have been awakened within him by his own experience, especially the power of insight into human nature and its needs. How he rehabilitates such unfortunates as John J. Smith, "the floating philosopher"; Duke Sands, the ex-convict; Nancy Littleton, "the woman that was a sinner," and others of like caliber, making real men and women of them, is thrillingly told. In these chapters the author



reveals an insight into human nature that is truly amazing; and incidentally a constructive solution for many of the ills of modern society.

Michael Mann is a priest-philosopher such as was common in medieval ages when the Church made use of the "Unusual." "But in our day the Church has lost the power to assimilate the Unusual. As a result, she is losing her power also to help and to heal the modern world, which, God knows, needs help and healing badly enough. Today the priest, the minister, must be 'respectable'; that is, he must conform to an accepted type, he must not offend conventional standards, he must not be unusual, peculiar, distinctive. If he is, he is cast out, sooner or later. For these characteristics not only offend the respectable; they also tend to disturb the placid slumber of ecclesiastical routine. The Christian Church forgets what the Greeks knew so well, that Sleep is the twin brother of Death."

Least any one should get the impression that these two volumes are an attack upon religion, it should be stated that both present a wholesome argument for the practicability of real religion. Michael Mann never loses his reverence for the priesthood, just as James Edwards finds his way back to religious verities.

Through a political trick of an envious church prelate, Mann fails to secure his reinstatement, even though it was voted, until just a few hours before his death. He is reinstated just in time to die a priest of the Most High God. There the story ends.

It should be explained that these books are not written in fictional style—as a continued narration. Each is a compilation and combination of diaries, autobiographical in nature. This style of presentation makes them all the more interesting.

L. M. C.

A genuinely scientific volume for lovers of true science, especially those who seek to plunge into the depths, is "Heredity and Parenthood," (The Macmillan Company, New York) by Samuel Christian Schmucker. The general theme is the influence of heredity. While the author recognizes the importance of environment in determining the trend of inherited characteristics, he places the stress upon heredity. After discussing the theories of heredity and their implications, he takes up the question of parenthood and traces the activities of the sex function from the very lowest animals up to man himself.

Having traced briefly the contributions of Gregor Mendel, Charles Darwin and August Weismann to the science of biology, the author gives us a chapter on "The Stream of Life." He then discusses the problem of reproduction and parenthood, from a biological point of view, in the lower orders, such as in the guinea pig, the fruit fly, the frog, the chicken, the horse and the cow, going as far down as the ameba and the animalcule. He also discusses the reproductive processes and functions in plants and flowers.

A very interesting chapter is "The Problem of Alcohol"—a very much discussed matter at the present time. As pertaining to the relation between the use of alcohol and feeble-mindedness, the author says, "I do not mean that everyone who uses alcohol is feeble-minded. What I mean is that anyone, who, seeing where alcohol is taking him, and wishing to refrain, still finds himself overcome is

almost certainly to some degree feeble-minded. Such a person is not an assuring husband nor is he a safe father of one's children. If the same feeling is present on both sides the danger is very great. . . For man or woman to take as one's life partner a mate already showing an inability to control a fondness for alcohol is to go openly into very serious danger."

In three very illuminating chapters the author discusses the following questions: "Do We Inherit Disease?" "Do We Inherit Health?" "Is Criminality Inherited?" His conclusion seems to be, generally speaking, that while the actual germs of disease are not inherited, yet the weakness in that direction or the tendency towards a disease running in a family, may be inherited. "It is our heritage to be well," he says. "It is natural for us to be well. Almost all the wild animals are well. Few of them die of old age, but few of them are sick. . . If we live up to this, our natural heritage, we will almost surely be well. If we do not do the foolish things we almost all know to be bad, we will usually be well."

In these days when the subject of lawlessness is uppermost in our thinking and writing and speaking, this author's conclusions on the subject of criminality, and the relation of heredity to criminality, are most illuminating.

The closing chapters of the book are devoted to a sensible discussion of the appropriate relation to each other of men and women, and boys and girls. The author deplors the modern tendency to make a laughing-stock of marriage, as exemplified in cartoons and the current literature of the day. He contends that we should do everything in our power to foster romance among our young people and bring about a restoration of the old time ideals of the marriage relationship.

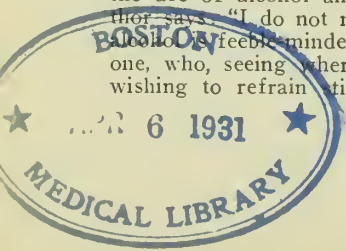
The book is well written; the arguments are presented from a scientific point of view and the conclusions are sane, practical and constructive.

L. M. C.

## BOOK REVIEWS

**DEVILS, DRUGS AND DOCTORS.** The Story of the Science of Healing from Medicine Man to Doctor. By Howard W. Haggard, M.D., Associate Professor of Applied Physiology, Yale University. Author of "The Science of Health and Disease." With many illustrations from original sources. 405 pp. New York and London: Harper & Brothers. 1929. \$5.00.

The author has presented the well known facts of medical history in an entirely new and novel manner and has done it so entertainingly that it is difficult once you have started reading the book to lay it aside. He takes us into the far past, shows us our ancient predecessor, not unlike the modern Indian medicine man, striving by prayer, exhortation, incantation, noise and bluster, to drive out the demons and devils that were supposed to possess the diseased man. Next the priest-doctors, who treated disease in sanatoria but assumed no responsibility, holding that the will of the gods determined the success or failure of the treatment. Hippocrates, in the 5th century before Christ, for the first time succeeded in separating medicine from religion, relieving the gods of the responsibility of the disease and placing it squarely on the shoulders



of man. The author calls Hippocrates the greatest of all physicians and quotes with satisfaction his Oath, and two aphorisms which ought to be engraved in the heart of every physician, (1) "To know is one thing; merely to believe one knows is another. To know is science, but merely to believe one knows is ignorance." (2) "Life is short and art is long, the occasion fleeting, experience fallacious and judgment difficult."

This is a charming book, delightfully and attractively written, and presents a large and comprehensive view of the history of medicine from the earliest times to the present date. The chapters, "The Turning Point," "Towards a Better Civilization" and "Civilization and Medicine," are well written and possess distinction of thought and matter that shows wide knowledge and broad vision. It is interestingly illustrated with over 150 reproductions of old and quaint engravings.

A. R.

**TULAREMIA.** History, Pathology, Diagnosis and Treatment. By Walter M. Simpson, M.S., M.D., F.A.C.P., Director of the Diagnostic Laboratories, Miami Valley Hospital, Dayton, Ohio; Formerly Senior Instructor in Pathology, University of Michigan. Foreword by Edward Francis, Surgeon, United States Public Health Service. With 53 text illustrations and 2 colored plates. New York: Paul B. Hoeber, Inc. Price \$5.00.

The subject matter of this book is divided into eleven chapters, with a foreword by Dr. Francis, and complete bibliography and index. Many splendid illustrations elucidate the text. The history of tularemia, its serological peculiarities as well as its unique features, are related in an interesting and scientific manner.

Dr. Simpson has done yeoman service in the study of tularemia having made thorough clinical and pathological studies of some 61 cases occurring in Dayton, Ohio. A careful perusal of his excellent monograph will serve to keep the physician "tularemia minded," which as the author observes is a cardinal point in correct diagnosis.

Tularemia possesses a peculiar interest to American physicians inasmuch as it has the distinction of being a disease in which American investigators alone discovered a disease of man, isolated its causative agent, determined its source of infection, its modes of transmission to man, and elucidated many essential problems connected with the complete knowledge of a disease.

How thoroughly all this has been accomplished is illustrated by the statement of Dr. Francis in the foreword in which he says that from 39 states have come reports of tularemia where the physician was enabled to make a diagnosis from textbook descriptions alone.

M. G. G.

**DISEASES OF THE LARYNX.** Including those of the Trachea, Large Bronchi, and Oesophagus. By Harold Barwell, M.B. (Lond.), F.R.C.S. (Eng.), President of the Section on Laryngology, Royal Society of Medicine, etc. Third edition. Oxford University Press, American Branch, 35 West 32nd Street, New York City. 1928. Price \$3.65.

Appearing as a handbook of diseases of the larynx in 1907 and revised in 1910 to cover greatly improved methods of inspection and treatment of the upper air and food passages by means of illuminated straight tubes, this third edition expands into an even more comprehensive manual for diagnosis and treatment of the diseases of the larynx.

Description of the technic and instruments of

Brünings and Jackson for direct laryngoscopy and bronchoscopy is given, with an impartial estimate of the virtue of each method.

Suspension laryngoscopy after Killian receives the briefest mention, and the most recent improvement by Hasslinger is described, with an illustration of his directoscope in position.

Laryngeal diseases are considered in an orderly way, etiology, symptoms, pathology, diagnosis and treatment. Illustrations remain the same as used in the original text, the material being improved mainly by the addition of mortality percentages.

Therapy receives more emphasis than anything else in this manual, giving formulas for local treatment, accepted principles for general medication, radium therapy in malignancy, and full description of standard surgical methods of laryngo-fissure and laryngectomy.

J. B. C.

**ESOPHAGEAL OBSTRUCTION.** Its Pathology, Diagnosis and Treatment. [Based on the Jacksonian Prize Essay of the Royal College of Surgeons of England for 1924 (Published by permission of the Council) and including a Hunterian Lecture delivered at the Royal College of Surgeons in 1926.] By A. Lawrence Abel, M.S. (Lond.), F.R.C.S. (Eng.), Assistant Surgeon to the Cancer Hospital, London, etc. Oxford University Press, American Branch, 35 West 32nd Street, New York City. 1929. Price \$9.00.

It is very difficult in one short review to give enough credit to the author of this splendid treatise on diseases of the esophagus. The reader is struck at once with the orderly sequence of material and interest is provoked and held by the striking absence of unnecessary verbiage.

Every source of information in point is shown in an impressive bibliography at the end of each chapter. Anatomical and physiological considerations occupy two chapters, and general diagnosis heads a chapter which illustrates all modern instrumentarium, esophagoscopes, forceps and bougies.

Normal and abnormal conditions as seen through the examining scope, are shown in twenty-four figures colored in actual appearance. Reproductions of radiograms illustrate the shadows of opaque substances seen in cardiospasm, extrinsic chronic obstruction, diverticula, granulomata, and cancer of the esophagus.

A few pictures of gross specimens are shown and, although no histological sections are illustrated, there is a minute description of tissue structures in the anatomical section.

Nowhere in the literature may be found a more complete or interesting text on the diagnosis and treatment of diseases of the esophagus, the author drawing source material from the best talent of record in all languages.

J. B. C.

**PHARMACOLOGY AND THERAPEUTICS, An Introduction To.** By J. A. Gunn, M.D., D.Sc. (Edin.); M.A. (Oxon.), Professor of Pharmacology in the University of Oxford and Fellow of Balliol College, etc. Oxford University Press, American Branch, 35 West 32nd Street, New York City. 1929.

Dr. Gunn has attempted to cover in a brief and general way the pharmacological actions and the therapeutic uses of the essential drugs used in the practice of medicine. Like most scientific books by English authors, it is well written, interesting and easy to read. It seems to the reviewer, however, that some important things are lacking, particularly in regard to the detailed action of some of the more



important drugs. This is probably due to the fact that the author condensed the entire subject of pharmacology and therapeutics into a book of a little over two hundred pages. Some statements are not entirely correct; for example, he says that epinephrine (pp. 140 and 147) produces little or no constriction of the coronary vessels. This view is by no means held by all pharmacologists. Epinephrine on the contrary has been shown to have a very decided action. Also in explaining the points of action of digitalis in the production of emesis (p. 157) the author fails to mention the action of digitalis upon the nerve endings in the heart as a possible source of emesis reflexly.

Nevertheless, taken as a whole, the book is sufficiently accurate and well written to deserve a place in a medical library. C. M. G.

**CLINICAL ELECTROCARDIOGRAMS.** Their Interpretation and Significance. Mayo Clinic Monographs. By Frederick A. Willius, B.S., M.D., M.S. in Medicine. Section on Cardiology, The Mayo Clinic, Rochester, Minnesota, and Associate Professor of Medicine, The Mayo Foundation, University of Minnesota. With 368 illustrations. Philadelphia and London: W. B. Saunders Company. 1929. Price \$8.00.

This volume might better have been titled an "Atlas of Electrocardiograms" for its value lies chiefly in the 368 illustrations rather than in the subject matter. The illustrations are well chosen on the whole and cover the field fairly well, but they present nothing new to the trained interpreter of electrocardiograms while the descriptive text (despite the lengthy legends) is inadequate for the beginner. There are several books on electrocardiography which will serve the beginner better, and the heart station that has been taking records for some time has in its files numerous examples (interpreted and classified) of many graphs reproduced in the book.

The mortality tables giving the prognosis in large groups of cases showing various electrocardiographic changes which Willius has published from time to time are included in the text and, together with the chapter on individual wave changes, form the most valuable and useful portion of the monograph. The final chapter on the dying human heart is unique and interesting but of no special value to the clinician.

As an atlas this Mayo volume may find a place on the shelves of heart stations, but it contains little of value to the novice on the interpretation of electrocardiograms. A. E. S.

**THE TONSILS AND ADENOIDS AND THEIR DISEASES.** Including the part they play in systemic diseases. By Irwin Moore, M.B., C. M. (Edin.), Late Honorary Surgeon to the London Throat Hospital for Diseases of the Throat, Nose, and Ear, Great Portland Street, and also to the Hospital for Diseases of the Throat, Golden Square, London, W. St. Louis: The C. V. Mosby Company. 1928. Price \$6.50.

From time to time books appear on this ever absorbing and interesting subject but rarely one that is more replete with information essential to the student of rhinolaryngology as well as to the finished specialist than this volume contains. The anatomical, physiological, pathological and histological phases have been well taken care of and the technical features, which are amplified with many beautiful plates,

leave nothing to be desired for the one seeking proper guidance.

The author has been mindful of the pitfalls that easily beset the uninformed and has done his best to point them out and devise ways and means for their avoidance. The chapter on "London paste" as a means of reducing lymphoid tissue is a revival of Sir Morell Mackenzie's work, but with a safer method of application.

The work is well written and contains a valuable bibliography.

The author's reiteration of the plea "for less indiscriminate operating and more skillful work done," is well taken and timely. C. F. P.

**THE TECHNIC OF LOCAL ANESTHESIA.** By Arthur E. Hertzler, A.M., M.D., Ph.D., LL.D., F.A.C.S., Professor of Surgery in the University of Kansas; Surgeon to the Halstead Hospital, Halstead, Kansas; to St. Luke's Hospital and St. Mary's Hospital, Kansas City, Missouri, etc. Fourth edition, with 146 illustrations. St. Louis: The C. V. Mosby Company. 1928. Price \$6.00.

The fact that a fourth edition of this book was prepared within three years of the previous one indicates that it has filled a decided need. This was predicted at the time the third edition was reviewed. It has been a pleasure to note the advances which the author has made during this time in the application of local anesthesia.

This work has doubtless influenced surgeons generally and stimulated them to the greater use of this form of anesthesia. It has been revised and brought up to date, while still retaining the conservatism and simplicity which have always characterized this author's methods. It should be particularly helpful to the general surgeon whose equipment frequently cannot be elaborate. Among a long list of drugs which have been advocated he has chosen novocaine, which has proven most useful and adequate in most instances. The reviewer agrees that quinine has a distinct but limited field of usefulness and feels that it should be employed only by those who have had a considerable experience in its use.

The author has shown that complex and expensive apparatus is quite unnecessary and probably less satisfactory than simple syringes and needles. His descriptions of the application of local anesthesia to various procedures, including both major and minor operations, are splendid and the numerous illustrations are excellent and most helpful. The general arrangement of the book is a credit to both author and publisher.

The more general use of local anesthesia is one of the most important advances in surgical progress and to the author, with his wide experience and his ability to present it, much credit is due. A. O. F.

**THE PRINCIPLES OF CLINICAL PATHOLOGY IN PRACTICE.** By Geoffrey Bourne, M.D. (Lond.), M.R.C.P., Casualty Physician, Demonstrator of Practical Medicine, and Chief Assistant to the Cardiographic Department, St. Bartholomew's Hospital, etc., and Kenneth Stone, M.D. (Oxon.), M.R.C.P., Late Senior Demonstrator of Pathology, St. Bartholomew's Hospital. Oxford University Press, American Branch, 35 West 32nd Street, New York City. 1929.

In the words of the authors: "The present work is an attempt to collect what are accepted as the most constant clinical pathological findings in disease, to state when the result of a test whether positive or negative is of value, and to record when such a test

is worth doing and when it is capable of giving help." There has been included "sufficient of the facts concerning the pathology of the disease to enable the origin of the clinical pathological findings to be understood." The chief of these are then enumerated. Finally, the bearing of each individual finding upon diagnosis, prognosis, and treatment is discussed.

This book was written for the clinician so that he may not be "too much in the hands of his laboratory colleague" who at present enjoys an "undue ascendancy" in the field of clinical medicine. In this connection it seems that the authors expect too much to be accomplished from the mere reading or studying of a book. Furthermore, it seems that the ascendancy of the clinical pathologist is not due to ignorance of his subject on the part of clinicians, as indicated, but to the appreciation of physicians who have a knowledge of the principles of clinical pathology. The clinical pathologist will welcome this book which makes the principles underlying his specialty easily accessible.

This book is devoted largely to principles so the technic is usually purposely omitted. References to technic usually apply to the proper collection of specimens, which should always be sent to a pathologist who does competent and careful work because "no patient's life or health should be allowed to depend upon results obtained by semi-skilled laboratory assistants."

It is to be hoped that the book will have a wide circulation among clinicians and that it will frequently be used by them. Its proper use will do much to place laboratory procedures in their proper place in medical practice and to insure that these procedures will be used in the interests of the patient.  
G. I.

**ENDOCRINE DISORDERS.** By Professor Hans Curschmann, Director of the Medical Clinic, University of Rostock, I. M. With an introduction by Franz Prange, Doctor of Medicine and Philosophy; Assistant at the Medical Clinic University of Rostock, I. M. Oxford University Press, American Branch; 35 West 32nd Street, New York City. 1929. Price \$4.00.

This is an excellent translation of Professor Curschmann's primer on endocrinology. As a primer, it gives rather clear statements of the condition of affairs at the time Professor Curschmann wrote the book.

As every physician knows, endocrinology is not a static science; the whole process has been developing and growing rapidly. A book which would cover it five years ago is not very fitting at the present time. Especially is this true in America where the investigations along the line of endocrinology have been particularly rapid and eventful.

Professor Curschmann seems inclined to accept the concept of pluriglandular syndromes, perhaps more so than those of us who have been watching closely the development of the experimental work in America. At any rate, the pluriglandular theory has led to a lot of loose thinking, and looser treating. In fact, as the thing stands now, one could just as easily attribute the symptom complexes spoken of as endocrine, to allergy, or to a deficiency disease, such as lack of vitamin B, or vitamin D. Consequently until more objective standards have been set up it does not seem wise to accept blindly these complexes as endocrine in origin.

Dr. Franz Prange has written the chapters on the

gonadal endocrines. His views seem sound and seem also to reject the idea of rejuvenation.

Professor Curschmann seems to hesitate on the matter of the thymus. The latest work would indicate that the weight of evidence goes to prove that the thymus is merely a secondary organ, brought back into activity or kept in activity by the needs of other organs or tissues. From reading his text one would be led to believe that it has a primary importance.  
G. H. H.

**THE CONQUEST OF CANCER.** By Radium and Other Methods. By Daniel Thomas Quigley, M.D., F. A. C. S., Instructor in Surgery in the University of Nebraska College of Medicine, etc. Illustrated with 334 engravings. Philadelphia: F. A. Davis Company. 1929. Price \$6.00.

The author gives a very interesting and well written historical resume of the principal milestones in the progress of our knowledge of cancer, and some excellent suggestions on cancer prophylaxis. He discards most of the former theories of tumor formation, except chronic irritation, and insists that the principal cause "cannot be other than the presence of low grade pathogenic micro-organisms" of many kinds. He also declares that "acidity is one of the requisites to the development of the cell proliferation we call cancer." He rejects the many former classifications of tumor types and substitutes one more or less simplified but not greatly differing from the names in common use at the present time.

The author's conception of the malignant tendency of a tumor differs much from that held by pathologists. He condemns pretreatment biopsies (and rightly so unless properly done) as "solid cancer is surrounded by a zone of liquid cancer," and easily transplanted by cautery or scalpel; but he has no qualms about spreading cancer himself by traumatizing it with radium needles inserted into the mass, though much time must elapse before the radium action can destroy the malignant cell.

The book is replete with many well chosen warnings against tampering with cancers by any method, but his dogmatic statements and especially his rabid denunciation of surgery together with some cases illustrated as having had surgery, yet whose scars are of the usual type, lead one to conclude that he is quite unfamiliar with modern operative methods and results, or that he deliberately denounces them, including X-ray and radon seeds. Either impression is tenable for although he shows many illustrations of cases before and after treatment, yet in only three or four does he mention the amount of radium used, the length of time applied, or the screening, as if these might be a deep dark secret. His optimism is remarkable. The reappearance of a growth following any other method of treatment is, he says, a *recurrence*, while *three successive reappearances* of a lip carcinoma after radium treatment are emphasized as distinctly new and separate cancers.

The reviewer regrets the author's unwarranted condemnation of other valuable means of treating cancer. While the many good illustrations of successfully treated cases are of types commonly cured by radium in the hands of other workers, my disappointment was doubly great because of the almost total lack of treatment details whereby scientific and valuable comparisons might be made. Equally to be condemned is the author's use of such terms as "pin heads," "bullets" or "shoe buttons" up to "apples" and "melons" as scientific (sic) measurements of tumors.  
C. F. S.



**VARICOSE VEINS.** By H. O. McPheeters, M.D., F.A.C.S., Director of the Varicose Vein and Ulcer Clinic, Minneapolis General Hospital, Minneapolis, Minn. Philadelphia: F. A. Davis Company. 1929. Price \$3.50.

This book is to be commended. The author has thoroughly reviewed the literature on the subject and his own experience with the treatment of varicosities by intravenous injection of sclerotics enables him to speak with considerable authority. His results are similar to those of other individuals who have had experience with this treatment. His technique is splendid for those adept in this intravenous work but a bit elaborate for the novice. Good results may be obtained by safer procedures in the methods of injection. It seems to me it would be very hazardous to attempt the injection in varicosities of the vulva or spermatic cord.

This book should find a ready acceptance among those interested in the subject. J. G. H.

**THE CLIMACTERIC (The Critical Age).** By Gregorio Maranon, Professor of Medical Pathology in the Madrid Hospital, Member of the Royal National Academy of Medicine. Translated by K. S. Stevens. Edited by Carey Culbertson, A.B., M.D., F.A.C.S., Associate Clinical Professor of Obstetrics and Gynecology, Rush Medical College of the University of Chicago, etc. St. Louis: The C. V. Mosby Company. 1929. Price \$6.50.

I cannot recall ever having read a work upon this subject that gave me as much pleasure as has Maranon's "The Climacteric." The work is complete, it is logical, it is of everyday practicability, and it is based upon a wide experience with clinical material correlated by an intellectual medical mind. After the first reading I began recommending the book to my friends. Following the second reading I am becoming somewhat of a nuisance in my insistence.

This book should be in the library of every medical practitioner and particularly of those specializing in diagnosis. F. I. R.

**THE TREATMENT OF FRACTURES.** By Lorenz Böhler, M.D., Chief Surgeon and Director of the Vienna Accident Hospital. Authorized English Translation by M. E. Steinberg, M.S., M.D., of Portland, Oregon, Formerly Senior Officer of the Surgical Service of the U. S. Public Health Service Hospital, etc. With 234 illustrations. Vienna: Wilhelm Maudrich. 1929. Price \$5.00.

This small but efficient book by Böhler is the result of an experience in ten thousand fractures over a period of nineteen years and includes the study of seventy thousand roentgenograms and the dissection of more than three hundred fractures on the post-mortem table. The varied experiences of Dr. Böhler have evidently stimulated him to the invention of several new simple fracture devices and to his clear conception of the principles involved in fracture treatment. Dr. Böhler has been a surgeon; has conducted a general country practice; served throughout the World War and organized and directed a two hundred bed hospital for fractures. After the war he engaged in general surgical and orthopedic practice in a smaller town and is now at the Vienna Accident Insurance Hospital in Vienna.

The book covers completely the reduction of fractures by the closed method. The author had devised different apparatus and splints which are mechanically right. He includes an original method for

reducing and holding fractures of the clavicle and already the reviewer has had the opportunity of applying this method and apparatus most successfully. Böhler looks upon the chest as a truncated cone and the fractured clavicle corresponds to a part of the broken ring or hoop. If the shoulder girdle is not only pulled backward but also pulled downward the shortening of the fractured clavicle can be reduced in the same manner as a broken ring over a truncated cone or barrel.

Böhler favors the injection of a two per cent novocaine solution at the site of fracture to reduce the pain during manipulation and adjustment of the fragment. This method is especially available in a fracture at the clavicle, radius, forearm and ankle. He favors the general use of the X-ray examination for diagnosis, fluoroscopic reduction and checking following reduction. He offers illustrations upon various types of apparatus, designed to maintain a limb in position for the easy application of plaster cast. Many devices are illustrated for the traction method of extension by ice-tongs, rustless nails and rustless wire. There is also a very ingenious vise or "redresseur" for the reduction of fractures of the calcaneus.

This small book has greatly impressed the reviewer and he feels confident that it will offer many ingenious newer methods, even to those who are handling fracture cases daily. J. D.

**PRINCIPLES OF CHEMISTRY.** By Joseph H. Roe, Ph.D., Professor of Chemistry, George Washington University Medical School, etc. Second edition. St. Louis. The C. V. Mosby Company. 1929. Price \$2.50.

This textbook aims to enable nurses and other persons with but little theoretical training to understand and execute directions that involve the simpler aspects of medical chemistry. It covers its field very broadly and lucidly, and yet deliberately omits various most important chemical "principles" that it would not be necessary for the proposed class of pupils to master. As illustrations of the author's method we note his simple and crisp introduction to the major classes of organic substances, his practical use of graphic formulae, his easily understood descriptive account of osmosis, etc., and at the same time his successful avoidance of the discussion of the respective quantitative laws and even of such important concepts as the asymmetrical carbon atom.

About a third of the book is devoted to an appropriate set of laboratory experiments. A. G.

**MATERIA MEDICA FOR NURSES.** By Edith P. Brodie, A.B., R.N., Director School of Nursing, Vanderbilt University, Nashville, Tenn., etc. Third edition. St. Louis. The C. V. Mosby Company. 1929. Price \$2.00.

It is a moot question how much information one should put into the textbooks for nurses and ask them to memorize. Thus some writers would make a book on materia medica a reference work, containing all the information possible. Others would make such a book more of an interesting clinical guide.

This book is one of the latter group. The author writes from the clinical rather than the laboratory standpoint. It is interestingly written, but occasionally lacks the precise information which a physician would have to have.

The fact that it has come out in a third edition would prove that the schools of nursing find it worth while. G. H. H.

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### ORIGINAL ARTICLES

#### RELATION OF FEAR AND BEHAVIOR\*

G. WILSE ROBINSON, M.D.

KANSAS CITY, MO.

A study of psychology is always fascinating, chiefly because it is a study of human beings and their behavior, the most interesting of all studies. And perhaps the two subjects in psychology of greatest interest are the emotions and personality. Certainly the subject of paramount interest to man in the entire field of human relationships is a study of the emotions. There can be no question but that the behavior of men and women is most profoundly influenced by the emotions.

In many cases we can only interpret the emotional state of the individual by his behavior; in other words, a careful study of behavior will enable us, with reasonable certainty, to define the situation or stimulus which calls out the act. This is in the main true; but there are many unsolved problems of behavior, both of individuals and of nations, which are most puzzling to the student of behavior psychology. The careful student of behavior can quite accurately predict the response if given the situation or stimulus. But response of any individual to a given situation will be influenced by his inherited tendencies, the habits formed, and his previous training.

The physician should be especially interested in a study of psychology because its relation to medicine is very close. Psychology should form a background for the whole field of medicine. The physician can learn through psychology the method of approaching and handling his patients. The patients should be studied in relation to their environment, and at times it is necessary to go back in the life history for an explanation of abnormal behavior. He should be able to determine the

facts concerning the character adaptation of his patients,—whether the patient has sufficient assets to live successfully in his environment, or has the ability to emerge from an environment unsuited to him.

In a general study of behavioristic psychology we must have as a basis an understanding of the physiological methods of examination. We must understand the physiology of the receptors and the nature of their stimuli. All behavior has neurophysiological action of certain organs of response. These organs are, muscles and glands. The muscles respond by contraction, the glands by an excess or deficiency of secretion. The muscles are the striped and the unstriped. Muscles respond reflexly, by voluntary control and involuntarily. The glands of response are the salivary and peptic glands,—the liver, the kidneys and the endocrine glands, of which the thyroid apparatus, the suprarenal, the thymus and pineal, the pituitary apparatus, and the sex glands are the chief.

The response to stimuli may roughly be divided into unlearned and learned behavior, or hereditary and acquired. The hereditary modes of response are emotional and instinctive; the acquired modes of response are explicit bodily habits.

Psychology deals with ideas. It wants to know what ideas are; where they come from; how they carry on; when linked with sensory and motor nerves; when harnessed to muscles. Ideas are real things,—just as real as muscle and bone. They lie coiled in the spring of all mental and physical endeavor. Whatever we undertake, perception, association, observation, memory, imagination, reason, judgment and will, plan and order the campaign.

We all have higher levels of resources than we dream of having or ever use. We gauge our mental and physical ability in terms far inferior to what we really possess. By properly directed effort we may break through layer on layer of these higher levels till we have reached a far loftier plane than we now occupy. If we learn to control our efforts, there is scarcely

\* Read before the Jackson County Medical Society, October 29, 1929.



any limit to our ability to successfully play the game of life. But our emotions may stir us to such a degree that we lose the self-control necessary to enable us to direct our efforts; they may rob us of poise and agitate us to such a degree that we cannot give clear thought to our work, whatever that work may be.

But our emotions are not always our enemies: they may be our good friends, if they do not explode in upheavals of anger, fright, disappointment or disgust. When they are simply stirred they warm up our fighting spirit and put us in a state of preparedness for defense or attack.

Emotion is the mainspring of all behavior, and the human expression of feeling is the first and most primitive phase of cognition, the most definitely recognizable of all the psychic states. It is primitive and powerful. It is primitive in the sense of being essential and original, not superadded, complex, or developed, as is the intellect.

Instincts are man's simplest feelings and represent his first reactions to his environment. Emotion implies a conscious recognition of man's feeling state and may be said to work the beginning of self-consciousness. Feeling always precedes thought; in animals we call it instinct; in the early stages of development instinct prevails in man as well as in the child and it is only after the growth of intellect that we have what may be properly called emotion.

The primary emotions may be divided into (1) positive, and (2) negative emotions. The chief positive emotions are, confidence, love, joy and expansiveness; the negative emotions are, fear, anger, grief, self-love. The positive emotions are exhilarating; the negative emotions are depressing.

The emotion of fear is universal in animal life. The emotion was known and experienced by primitive man as he wended his way through the trackless forest. He feared the known and unknown, as man does today. And when the Angel Gabriel stands with one foot on the land the other on the sea and raises the golden trumpet to his lips to proclaim to the living and resurrected dead, that Time shall be no more, fear will still be a dominant emotion of all men.

Behavior is a term used to describe actions, as viewed by others. There is a distinction between behavior and conduct but I shall not distinguish between them in this discussion. Our behavior is modified and regulated in part by our primitive instincts, in part by our environment and by our reaction to environmental influences.

The primary instincts are, self-preservation, nutrition and sex. These instincts are common to all men. The instinct of gregariousness or

herd instinct is likewise common, but is more highly developed in some than in others, and all other instincts may be repressed under certain conditions in favor of the herd instinct, as in case of family, community or national peril.

The excitement of any instinct always has an affective aspect, as all ideas and actions have feeling tone. In the case of the principal and powerful instincts the affective quality of each instinctive process and the sum of the visceral and bodily changes in which it expresses itself, are peculiar and distinct.

The instinct of self-preservation in times of danger stimulates us to resistance, flight or concealment. The emotional aspects of these actions are either anger or fear or a combination of both. We may fight viciously when intensely afraid or fear may prompt us to flee from the danger or conceal ourselves until the danger is removed.

Fear is responsible for many children developing the shut-in type of personality which so predisposes the child to the development of mental and nervous disorders. Sensitive and self-conscious children are afraid of association with other children and withdraw from this association as much as possible.

Fear of persons of the opposite sex drives many children and young adults to become homosexual perverts.

Fear of the realities of life and fear of meeting the problems of reality causes many to indulge in morbid autistic or fantastic thinking which not infrequently predisposes to the development of a true psychosis in some and causes others to seek relief in suicide or alcoholic intoxication.

Various psychoses are wishful filling in character. They develop as a result of a wish to enable the individual to escape from the fearful and painful realities of life.

Fear is a very important factor in the development of many psychoses. Fear of disease and fear of failure are two of our most common types of phobia. All men desire to remain well and succeed in life. Fear of disease is closely associated with the fear of dirt. This fear causes many to spend hours daily in washing of hands, using antiseptics in mouth, nose and over the body; some are afraid to touch objects—they wear gloves, wipe door knobs before opening doors. A patient of mine broke a glass, while washing dishes. Fearing she had pieces of broken glass on her hands she washed them hundreds of times a day. Many patients refuse to eat or drink for fear of infection or poison. The same fear causes many to withdraw from all contact with others.

Fear of failure paralyzes the efforts of many

capable persons. They are afraid to undertake to do anything for fear of failure. This fear may develop in those who have previously been successful. They develop a complex that prevents them from "carrying on," and become so obsessed with the idea of failure that failure is inevitable. Suicide frequently results. Some men have this fear to such a degree that they kill their entire family and themselves through fear that the family will suffer because of the failure which they fear.

Of all the depressive emotions the one which is most productive of evil is the emotion of fear. It is one of the most primitive instincts of animal life. As Kipling puts it, "Fear walks up and down the jungle by day and by night." "Fear is rooted deep down in the very organization of animal existence." "It takes its root in what is the very essence of life, the instinct of self-preservation." And Sully says, "It appears early in the life of the child and seems to appear low down in the neurological scale." "Fear," says Darwin, "is the most depressing of all the emotions." The fear of coming evil, especially if it is unknown from experience, gives rise to a feeling of anxiety. "If we expect to suffer," says Darwin, "we are anxious." "The anxious condition of the mind," says Bain, "is a sort of diffuse terror." Anxiety is nothing else than the working of the instinct of fear. "Anxiety, fear, horror," says Mosso, "will twine themselves perpetually around the memory like deadly ivy choking the light of reason." "Fear may seriously disorder every function and tissue of the body." Sidis says, "the feeling of anxiety and all its accompanying phenomena is one of the manifestations of the most fundamental and most primitive of animal instincts. It is the fear instinct which is at the basis of all psychopathic or mental maladies."

Fear and morbid anxiety are the most common symptoms in psychopathic conditions and perhaps in all medicine. William McDougal<sup>1</sup> associates the instinct of flight and the emotion of fear. He says the instinct to flee from danger is necessary for the survival of almost all species of animals and in most of the higher animals the instinct is one of the most powerful. On its excitement the locomotory apparatus is impelled to its utmost exertions, and sometimes the intensity and long duration of these exertions proves more than the visceral organs can support and are terminated by utter exhaustion or death.

These locomotory activities are accompanied by a characteristic complex of symptoms which in its main features is common to man and to

many of the higher animals and, in conjunction with the violent efforts to escape, constitute so unmistakable an expression of the emotion of fear that no one hesitates to interpret it as such; hence, popular speech recognizes the connection of the emotion with the instinct that determines the movement of flight in giving them the one name, "fear."

Man, to become adapted to his environment, must be a transformer of energy. This adaptation to environment is made by means of a system of organs evolved for the purpose of converting potential energy into heat and motion. The principal organs and tissues of this system are the brain, the adrenals, the thyroids, the muscles and the liver. Each is a vital link, each plays its role, and one cannot compensate for the other. Crile, by his experiments and observations, has demonstrated and explained<sup>2</sup> the effect of all the depressive emotions on the cells of these organs.

Cannon<sup>3</sup> discusses the antagonism of the autonomic and vertebral sympathetic nervous system in relation to the emotions. He says the cranial autonomic is concerned with the quiet service of building up reserves and fortifying the body against times of stress. Accompanying these functions are the relatively mild pleasures of sight, taste and smell of food. The possibility of the existence of these animal delights of eating and drinking, and also their physiologic consequences, is instantly abolished in the presence of emotions which activate the sympathetic deviation system. The secretion of saliva, gastric juice and pancreatic juice is stopped, the motion of the stomach and intestines ceases at once, both in men and the lower animals, whenever pain, fear, rage or other strong excitement is present in the organism. The stimulation of the cerebral sympathetic by fear and morbid anxiety immediately causes an increased secretion of adrenalin. An increased amount of adrenalin in the blood causes exhilaration of the respiratory and circulatory mechanism, and one of the most important results is to cause the liver and muscles to release their reserve store of glycogen. This is thrown into the blood as blood sugar and that which is not needed for immediate consumption is excreted by the kidneys.

McDougal says, "the release of the glycogen under the influence of rage, fear, pain, etc., is a provision of nature to prepare the body for great exertion in either combat or flight, as inclination or necessity may require." Glycogen released under the influence of phobias is not

2. Crile, George W.: *The Origin and Nature of Emotions*, Philadelphia, W. B. Saunders Company, 1915.

3. Cannon, William B.: *Bodily Changes in Pain, Hunger, Fear and Rage*, New York, D. Appleton & Company, 1915.

1. McDougal, William: *An Introduction to Social Psychology*.



used for the production of energy and therefore is wasted. If the fear extends over a considerable period of time there is a steady consumption, or if the fear is intense, a rapid consumption of the energy-producing compounds of the body and a state of mental and physical exhaustion results. McDougal has likened our store of nerve energy to a reservoir with many gates. When we desire to use nerve energy in any direction the gate admitting the energy to flow in that particular direction is opened and closed again when we have no further need of a flow of energy in that direction. In states of fear and anxiety and loss of the attentive control, the whole system is disorganized. Several gates may be thrown open at one time allowing an escape of nerve energy in directions not needed and it is therefore wasted. The loss of the power of the attentive control prevents the mind from concentrating in the direction desired and the nerve energy cannot be directed.

Insomnia is said to cause exhaustion. It has been my observation that in the absence of fear, morbid anxiety and loss of attentive control as associated with insomnia there is no exhaustion. I have not seen a case of nervous or mental exhaustion result from uncomplicated insomnia. If a better understanding were had of the physiology of sleep, disorders of sleep would not cause the fear so frequently seen. It should be understood that we go to bed to rest and not merely to sleep, and that if we rest quietly throughout the night we can accumulate a store of nerve energy for the stress of the following day even though we do not sleep. Sleep is not essential to life or health, but rest is.

Another very common mental factor in the production of the neuroses and of the psychoses is the loss of the power of attentive control. In our schemes of school education attention is of paramount importance and the child who finishes his school work without having an adequate degree of attentive control might as well have stayed at home and will perhaps, later in life, have to receive a course of reeducation from the magistrate or the physician.

Dr. H. Crichton Miller states that the attentive control is the one aim of all true education. But our educational system is dealing with it less successfully now than previously, and when the failure of attentive control manifests itself in later life, as in ill health, it falls to the physician to correct it. The number of persons who manifest a loss of attentive control is increasing at an alarming rate.

The symptoms are much the same in all.

The patient is a victim of indecision, he cannot make up his mind on any subject, he has lost the power of mental concentration, he has lost his will power, and in many instances his mind is bound to one particular idea.

Those who have actually passed that imaginary border line between sanity and insanity likewise have their morbid fears and obsessions, imperative ideas, etc., which are so distracting that they cannot direct their ideas and cannot control their attention. They must be dealt with in a mental way by psychoanalysis, explanation and sidetracking. Occupation and amusements are very helpful and a course of reeducation of the attentive control gives results.

The stress of present-day business and professional life drives many men to make over-drafts upon their nervous and mental energy. If this practice is continued a feeling of inadequacy develops; they shortly become morbidly fearful that their work is greater than their ability. Their ideas now center upon this fear of failure rather than upon the details of their business. They do not give attention to the daily events and occurrences and an apparently failing memory gives them added cause for worry.

Loss of attentive control is responsible for many business failures. Ideas of ill health may dominate the field of thought and a loss of attentive control results.

The most commonly observed fears are, the fear of syphilis, the fear of cancer, the fear of tuberculosis, the fear of insanity and the fear of dying. The number of persons manifesting these morbid fears is rapidly increasing; this is especially true of the fear of syphilis, the fear of insanity and the fear of dying. The victims of morbid fears are innumerable. With all of them the loss of attentive control is the most insistent and common symptom and when they regain the power of attentive control their health is usually restored.

Some considerable discussion has arisen as to the nature of attention and its relation to the will power. With modern psychology there is a tendency to use attention and will power synonymously.

Huxley defines the aim of all true education as follows: "To enable us to do the things we ought to do, when we ought to do them, whether we like them or not." I would supplement that definition by saying, that the aim of all true education is also to enable us to think the thoughts we ought to think, when we ought to think them, whether we like them or not.

Musterberg says, "Mere learning is no sub-

stitute for training of mental energy. Habitual rushing to new and ever new impressions may easily interfere with the development of persistence in character. Whether the will is allowed to start one thing and then to be pushed to something else, or whether it is forced to hold on against all difficulties makes the difference which counts for life."

An education which spoils the mind and never demands real effort, which simply follows the likings and interests, leaves the adolescent individual in a flabby and ineffective state. "On the other hand, the training of attentive control insures strength in any sphere, even though the gift is small. The mind that has learned to resist distractions can hold its own in any field."

Much has been written in the lay and medical press concerning the condition known as "shell shock," and many people conceived the idea that a new disease had been discovered. "Shell shock," or war neuroses, disabling military men, has its analogy among men and women engaged in peaceful pursuits and is responsible for much disability among the civilian population. It is not possible to estimate the percentage of civilian population that are partially or completely disabled because of neuropsychoses, but that it is very high all neurologists are agreed. Some attempt has been made in military practice to arrive at an approximate estimate of the percentage of soldiers disabled. The surgeons of the British Army estimated that one-fifth of all men discharged from the British Army, or hospitalized because of illness, had some form of neuropsychosis as a cause of the disability. In all the armies engaged the percentage was likewise very high. That these disabilities among our troops have not been temporary in character is evident by the large number who are alleging residual disability and asking that they may be compensated for these disabilities, even at the present time, a period of more than ten years after the close of the war. It is by far the largest and most expensive problem with which the Veterans' Bureau has to deal today.

Through the warp and woof of every one of these mental and nervous conditions which are responsible for such an unbelievable amount of disability among both civilian and military individuals, runs the thread of fear. Permit me to emphasize at this time that the man or woman whose way of life leads into the day-tight-compartment life does not fear. The emotion of fear does not have its root in the day's work but in the anxiously anticipated trouble or failure of tomorrow.

It has been my experience and observation that individuals so disabled have failed to meet difficult situations successfully simply because they have not lived day-tight-compartment lives, but have endeavored to carry the load of the day's work, yesterday's regrets and tomorrow's fearful anticipations. This combination is too great a load for any one to carry, and the result has been sufficient overdrafts upon the nerve energy to cause nervous and mental bankruptcy.

Every man has, or should have, a philosophy of life. He may be in possession of the very best and not know of its existence; having the very worst he may pride himself as a paragon. I wish to point out a philosophy which will fit any life or any situation in life; in other words, a handle which will fit the life tools to point out a path in which the wayfaring man cannot go astray.

It is not a complicated system nor a formal plan; simply a habit as easy or as hard to adopt as any other habit, good or bad. In our earliest infancy we begin the formation of habits, both muscular and psychic. Life is a habit, a succession of actions that become more or less habits of the same kind.

Plutarch says that character is long standing habit. The way of life which I desire to present for consideration is a habit to be acquired gradually by long and steady repetition. It is a practice of living for the day only and for the day's work,—life, as Sir William Osler has said, in day-tight-compartments.

Carlyle says our main business is not to see what dimly lies in the distance but to do what lies clearly at hand.

Since the chief worries of life arise from the foolish habit of looking forward and backward, there is peace for the anxious and worried man if he look neither backward to the past nor forward to the future.

The chief factors of safety of the great ocean liners are the fore and aft water-tight-compartments. By touching a button on the bridge the great iron bulkhead doors can be closed, shutting out all communication between the various compartments.

The safety of your today depends to a very great degree upon your ability to touch a button and hear at every level of your life, the aft iron doors closing and shutting out the past,—the dead yesterdays. Also, to touch another button and shut off with the forward bulkhead doors, the future,—the unknown tomorrows. It is not easy to disregard the past; it haunts us like a shadow. We should learn to bury deep in the oblivion of each night the joys and sorrows, the disappointments, the



mistakes and sins, the petty annoyances, the real and fancied slights of the day.

George Herbert says: "Undress your soul at night, not by self-examination but by shedding, as you do your garments, the daily sins whether of omission or commission, and you will waken a free man with a new life."

We can have no greater handicap in our course than that of carrying the habit of retrospection and introspection; letting the mistakes of yesterday paralyze the efforts of today; hugging the worries of the past to our destruction; allowing the worm "regret" to canker the very heart of our life. St. Paul said he died daily and thereby insured the resurrection of a new man and made each day the epitome of a life.

The future should be shut off as tightly as the past. No fearful anticipations, no dreams, no visions, no fantasies, castles in the air, with which hearts are broken, heads are turned. The tomorrow has no certainty, except through today. The uncertainty of tomorrow is a proverb, yet we may all have the secret. The future is today, there is no tomorrow.

The day of man's salvation is now, the life of the present of today lived intensively, earnestly and sincerely, with no forward looking thought, is our only insurance for the future. We should make the limit of our horizon a twenty-four hour circle. We should shut tightly and keep closed the fore and aft bulkheads and constantly cultivate the habit of a life of day-tight-compartments. The acquisition of the habit takes time just as does the formation of any habit. The way is not hard if we will sincerely persist in our efforts to find it. If we learn to live our lives in day-tight-compartments, we will be better able to bear our own and others' burdens; we shall find more of happiness; we shall be able to travel much farther on the way which has been blazed for us by strong men, into whose labors we enter and whose ideals must be our inspiration.

The way of life which leads us into day-tight-compartments offers far more of joy and less of sorrow, less waste of energy, mental distress, nervous worries and morbid fears, more power of attentive control and mental concentration to the work which is immediately at hand and crying to be done.

If morbid fears develop, the best method of overcoming the emotion is to substitute some confidence-inspiring thought in the place of dwelling on the thing feared. A positive attitude should be preferred to a negative.

## PULMONARY LESIONS SECONDARY TO DENTAL CARIES\*

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In the autopsy room one is impressed by the cases of pulmonary disease associated with dental lesions often missed clinically and frequently passed over as tuberculosis. Undoubtedly many of these patients could have been cured had early accurate diagnoses been made. C. L. Harrell<sup>1</sup> writing on the differential diagnosis of nontuberculous pulmonary infection from tuberculosis, said, "There is no doubt in my mind at the present time but that many cases are being called tuberculosis that are not tuberculosis." But in some medical schools, in the study of lung diseases, the tendency has been to stress *tuberculosis*, going into detail on the history, habitus, signs, symptoms, roentgenological findings, prophylaxis, and food-rest-sunshine treatment,—often slighting the fact that there are many other diseases closely simulating pulmonary tuberculosis which, if kept in mind, recognized, and treated specifically, yield highly satisfactory results. Joress<sup>2</sup> has classified these diseases into three groups. In the first group he names bronchitis, bronchiectasis, abscess, asthma, pneumonia, fibrosis and pneumoconiosis. In the second group he places neoplasm, cyst, mycosis, lues and spirochetosis. In the third group he mentions aneurysm and cardiac, sinus and thyroid diseases.

The reason that spirochetosis,<sup>3</sup> amebiasis<sup>4</sup> or actinomycosis of the lung seem to be so rare clinically is that a search for the organisms responsible for such diseases is seldom made. A simple carbolfuchsin stain will readily demonstrate the absence or presence of spirilla and fusiform bacilli, and to one familiar with the gross and microscopical appearance of actinomycotic granules there is nothing mysterious about the search for and identification of these organisms. Amebae in expectorated material are hard to recognize,—much more so than amebae in the stool because they resemble leukocytes; but a half-hour's diligent search may mean much more to the patient than several times that long a period percussing and auscultating the chest and explaining the merits of fresh air, sunshine, rest and cod liver oil. David A. Stewart,<sup>5</sup> after giving a resumé of the differential diagnostic points of pulmonary tuberculosis and septic infections, states that no invariable rules govern this. He says:

\* Read at the 72nd Annual Meeting of the Missouri State Medical Association, Springfield, May 13-16, 1929.

"Diagnoses are made *not* by adding symptoms to make a total but by *grouping* symptoms to make a picture."

Newman<sup>6</sup> says: "It is clearly demonstrated that there is a distinct correlation between pathology present in the lower respiratory tract as influenced by conditions present in the upper tract. This bears importance in considering treatment, as seeking the focus and treating that alone may clear up the distant pathology." Meyers<sup>7</sup> expresses his opinion in these words: "A close relationship has been found to exist between disease of the paranasal sinuses, teeth, etc., and some cases of bronchiectasis, lung abscess, etc." And Schottmüller<sup>8</sup> writes, "Beziehungen zwischen dentalen Infektionen und anderen Organ bzw. Allgemeinerkrankungen sind fraglos vorhanden."

Holman<sup>9</sup> injected pyogenic emboli into the jugular veins of experimental animals. "Clinical application suggests," he said, "that small infected emboli may readily be held up in the pulmonary circulation with little or only temporary disturbance if the lung is otherwise normal."<sup>10</sup> However, there are very few adult lungs that do not bear at least some kind of scar.

McPhedran,<sup>11</sup> in Osler's Modern Medicine, writes: "Focal infections in the upper air passages, e. g., tonsils, sinuses . . . and teeth, may give rise to local areas of bronchitis. . . . This is important as such cases may be regarded as tuberculous in origin."

Aison<sup>12</sup> says that in the last decade both the dental and medical professions have realized correlation between dental and systemic disease, and Goldberg<sup>13</sup> thinks the dentist and internist should work together. He says: "I do not know of any diagnosis more difficult to make than that of a dental infection with systemic expression of disease. The patient with pulmonary disease which may have its origin in the oral cavity seldom goes to the dentist first."

Haden<sup>14</sup> has shown that even dead teeth which appear innocent under the X-ray may harbor pathogenic organisms. He also states that the "incidence of infection is almost as high in the radiographic negative group as in the radiographic positive group. There is a very sharp limitation to the translation of radiographic evidence of infection into terms of bacteria. . . . The radiographic negative tooth may be a greater source of systemic infection than the radiographic positive tooth."

Johnson,<sup>15</sup> commenting on this, concludes that a radiographic examination of all the teeth is essential in searching out foci of infection about the teeth. Also: "In the interpretation of radiographic evidence of infection, all pulp-

less teeth and all teeth showing extensive absorption of alveolar margins must be considered as active sources of infection; and that, judging from the clinical results obtained, . . . the removal of all pulpless teeth and of all teeth showing extensive infection of the gingiva and alveolar margins is entirely warranted, as prophylactic, as palliative, and as curative measures."

Two cases are herewith reported, intentionally to bring up the subject of dental infection as a cause of curable pulmonary disease.

#### REPORT OF CASES

Case 1. White woman, 34 years old. Complaint, "trouble in the left lung." Duration 10 years. Previous attacks none.

*History.*—The patient was well until ten years ago (1918), when she developed a "severe cold" and began to cough up yellow material. She was told that tubercle bacilli were present in her sputum. Her severe symptoms persisted for ten days and for the three months following she had a slight afternoon fever.

The positive finding of tubercle bacilli was reported by a competent physician at Lawrence, Kansas. Tests were again run in 1921 with "negative" results at Norton, Kansas, and by Dr. Cunningham's technician. But in 1926, Dr. Laney, of Minnesota, found tubercle bacilli and in 1928 Drs. Sherwood and Chambers, of Lawrence, also discovered them in the sputum.

During the years between 1918 and 1926 the patient was up and about and in a fair state of health. But soon she developed symptoms of "asthma," wheezed, grew weak, went North and began coughing up "green stuff." She stayed in a sanatorium for three months, going from 90 pounds to 130 pounds in weight.

In 1927 she had another attack with fever and coughing. There was an exacerbation in April, 1928, and when she first came into our hands she had been bedridden for almost two years.

Her present attack (April 24, 1928) began with coughing and expectoration of very foul whitish material.

*Past History.*—Menses had been regular but slight. She was married in 1921 and had never become pregnant. Dr. Jabez Jackson had cut into a left cervical adenopathy in 1912 and given no definite report on biopsy findings. A few months later in the same year, at Mayo's, a tonsillectomy was done and also a right cervical lymphadenectomy. The report there was that tuberculosis was present.

*Physical Examination.*—Well nourished woman, almost plump, weighing about 130 pounds. Respiratory rate 40, pulse 140 with occasional irregular beat, temperature 102, blood pressure 122/62. Teeth not in the best condition; several missing. Throat lining pink, no sinus tenderness, nasal passages open, pupils equal size, retinæ slightly pigmented. Finger nails, toe nails and lips pink, skin pale, feet cold. Bilateral supraclavicular scars. Knee reflexes equal. Abdomen, rectum, vagina, nothing noteworthy.

*Chest.*—Shaded areas resonant, others dull and flat with indistinct vocal and tactile fremitus. (Fig. 1.) Heart borders vague.

*Laboratory Findings.*—Repeated careful examinations of the sputum showed no acid-fast bacilli but did reveal both intracellular and extracellular short-



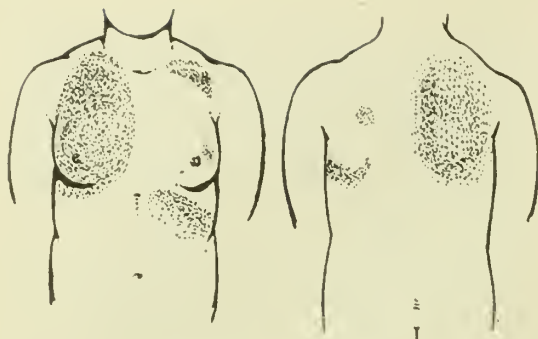


Fig. 1. Case 1. Resonant areas shaded.

chain pneumostreptococci. Wassermann negative. Urine, nothing unusual. Stool, excess fat. Blood, 70 per cent hemoglobin and a corresponding number of erythrocytes; leukocytes 16,800 of which 92 per cent were polymorphonuclear neutrophils. X-ray report: "Total opacity obscuring entire left thoracic cavity, with displacement of heart and trachea toward the right." (Fig. 2.)

Diagnostic puncture at the inferior angle of the left scapula, dorsally, yielded 2 ounces of thick green pus devoid of bacteria both in smears and culturally.

**Diagnosis.**—Acute streptococcic suppurative bronchitis; chronic left thoracic empyema with focal accumulations of pus; focal thickened pleura; focal pulmonary emphysema and atelectasis.

Report of consultation with Dr. A. Morris Ginsberg: "Damage to left lung quite marked, with probable encapsulated fluid; right lung involved also; old pathological process with an acute mixed infection; advise puncture of left pleural cavity; think there is more to be lost than gained by rib resection."

**Prognosis.**—Grave.

Multiple punctures were repeated every two or three days and when pus was obtained there was a

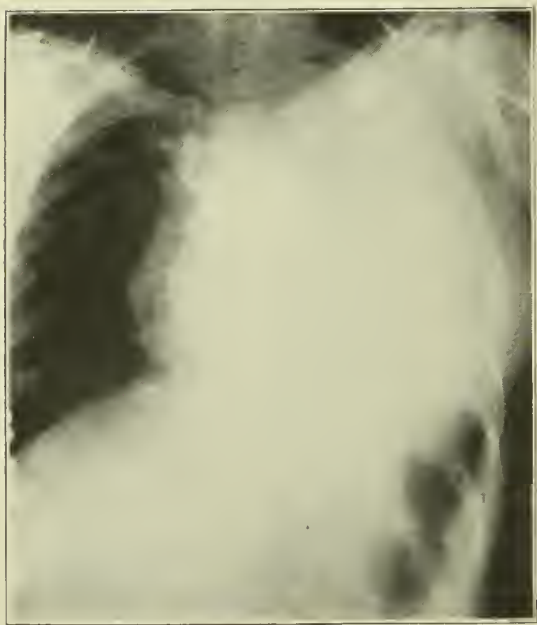


Fig. 2. Case 1. Pulmonary tuberculosis complicated by secondary infection associated with dental caries.

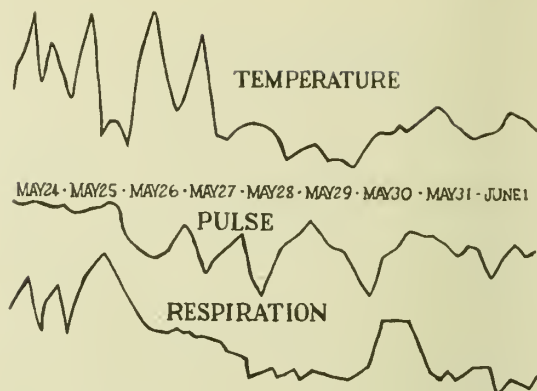


Fig. 3. Case 1. Effect of thoracic puncture on temperature, pulse and respiration.

decrease in the temperature, slowing of the pulse and respiratory rates as noted in the chart. (Fig. 3.)

Further history revealed that a left-sided toothache preceded her present illness and X-ray plates of the teeth were interpreted as follows:—"(1) Upper left first molar devitalized; extract. (2) Upper left lateral incisor, apical abscess. (3) Upper left cuspid, cavity in crown. (4) Lower left solitary molar shows large filling and questionable apex. (5) Upper right cuspid, cavity in crown. (6) Upper right first bicuspid, apical abscess. (7) Lower right solitary molar devitalized; questionable apices." June 26 she had her first two teeth removed. The last thoracic puncture was done June 30 and on July 1, she went home.

**Final Diagnosis.**—Probable early tuberculosis of tonsils and cervical lymph glands; probable left apical pulmonary tuberculosis; infected regions at apices of several teeth (focal osteomyelitis of the jaw bone), probably streptococcic; metastatic left pulmonary abscess; bilateral streptococcic suppurative bronchitis; focal left pleural empyema; fibrous adhesions at upper lobe of left lung; spontaneous left pneumothorax.

Subsequent treatment expectant. All remaining teeth extracted a few at a time, those having the worst appearance removed first.

The patient is now up and about and able to carry on light work.

**Case 2.** White woman, 64 years old. Until her present illness had been active and enjoyed good health. Diagnosed "flu" three months earlier and had been confined to bed ever since. Her headache

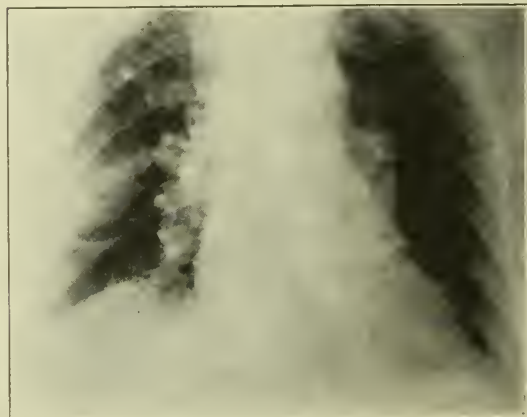


Fig. 4. Case 2. Lung abscess.

and fever increased and her pain localized at the right cheek bone. A specialist diagnosed "right maxillary sinusitis." Eventually, thin pus began to discharge from right nostril. At the end of six weeks, during which time the sinusitis had apparently cleared up, patient was still bedfast with intermittent fever and continual severe occipital headache.

Within a short time thereafter she became totally blind and lost the use of her left arm and two days later suddenly developed clonic spasms of right arm and had difficulty in talking. Tendon reflexes were exaggerated, bilateral pseudoclonus of the ankles present, and abdominal reflexes could not be elicited. Voluntary movement of left arm was lacking except at the shoulder, right arm movement was slowed and the handgrip was weak. Not a sign of cranial nerve involvement except total blindness, but patient admitted that the day before her "stroke" she had a strong odor of roses in the room and not a flower was near her.

Blood pressure 160/85, respiratory rate 25, pulse 110, temperature 100 degrees.

No signs of meningeal involvement. Spinal fluid easily obtained, clear, under moderate pressure, cell count 200, mostly erythrocytes.

**Differential Diagnosis.**—(a) Cerebral hemorrhage, (b) cerebral thrombosis, (c) meningitis, (d) nephritis, (e) spreading encephalitis.

Hemorrhage seemed improbable because of the low blood pressure, patient's age past sixty, no history of preceding exertion, and rapid pulse. Thrombosis not seriously considered because of absence of findings of syphilis, no preceding numbness and tingling, no unconsciousness, and rapid pulse rate. Meningitis ruled out by absence of increased spinal fluid cell count, negative Kernig, and rapid pulse rate. Nephritis with uremia not present because of absence of greatly increased spinal fluid pressure, no albumin nor casts in the urine, and absence of other signs and symptoms of uremia.

Blood count 15,000, mostly polymorphonuclear type. Hemoglobin 80 per cent.

Tentative diagnosis, acute spreading encephalitis, on a basis of evidence of infection, fever, leukocytosis and story of preceding symptoms of sinusitis.

After five days eyesight gradually began to return and after ten days she could read large letters. Spasms of right arm stopped and left arm could be moved except at the wrist and fingers. No sensory disturbances elicited at any time.

Mental tests showed only some weakness in calculation and judgment, and these were improved after two weeks. Abnormal sleepy spells for two weeks.

Danger of brain abscess in a "silent" area was kept in mind as were also its etiologic factors, pyemia, infected sinuses, and disease of the lungs and teeth.

In spite of the improvement in movement of left arm and disappearance of headache, the blood cell count remained above 15,000 and pulse rate fast. One day she began to cough and had disseminated chest pains, developed a hectic fever, respiratory rate of 36 and pulse rate of 120.

**Diagnosis.**—Lung abscess,<sup>10</sup> confirmed by X-ray. (Fig. 4). The plate suggested that it was older than her acute symptoms indicated. This brought up the question of whether the pulmonary lesion or the cephalic lesion were primary, or whether both had a common primary source either in the sinuses or teeth.

All her teeth had been removed several years

earlier and gums appeared pink. Never X-rayed for retained fragments. At a point localized by the patient where intermittently the gum had been swollen and tender X-ray revealed a tooth fragment and rarefied adjacent jawbone, the upper right incisor.

This introduced another possible pathogenesis, namely, infection starting about the tooth and setting up distant lesions in the brain and chest, or first the brain and then the lung, or first the lung and then the brain. Also, the tooth may have been responsible for the right-sided maxillary sinusitis<sup>17</sup> followed by sphenoid sinusitis. Or the sinus infection alone may have been the starting point of the whole thing. Preston<sup>18</sup> writes: "I have never seen a case of lung abscess which could be directly laid to sinus infection, but it seems plausible. The maxillary sinus is the one usually most concerned."

Plates also indicated a thick-walled right maxillary sinus. There is room for discussion as to whether the thoracic shadow represents lung abscess or an interlobar collection of fluid. Such discussions are not infrequent in the literature.<sup>19</sup>

Two days later she began coughing up large quantities of gray streaked mucopurulent material with the typical odor of lung gangrene. Pulse rate dropped to 90 and fever peaks became progressively lower.

As soon as it seemed she could stand it, the tooth fragment was removed and within about nine months she had gone on to a complete recovery.

#### CONCLUSIONS

In the diagnosis of pulmonary disease lesions of the upper respiratory tract, particularly those associated with dead teeth, should be kept in mind.

Intrathoracic disease secondary to peridental infection may closely simulate pulmonary tuberculosis.

Recognition of lung abscess consequent to dental caries and adequate treatment based thereon yield highly favorable results.

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## OBSERVATIONS ON SPINAL ANESTHESIA\*

REPORT OF FIVE HUNDRED NINETY-NINE CASES

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This report involves the use of three preparations, apothesine, novocaine and spinocaine.

Apothesine was given to 267 cases. It was obtained in bulk, weighed out in 120 mg. lots, placed in small bottles, sealed with paraffin and sterilized at 60° C. for one hour. The doses ranged from 100 to 120 mg., according to the weight and musculature of the patient. The drug was dissolved in spinal fluid and reinjected, the height of the anesthesia regulated by the amount of spinal fluid withdrawn and reintroduced, and by the level of the injection; this level varied from the 12th to the 4th lumbar interspace.

For herniorrhaphy, appendectomy, or perineal work, about 7 cc. were withdrawn and the puncture made between the third and fourth lumbar vertebrae; for hysterectomy, 10 cc. between the second and third, or the first and second; for stomach work, 15 to 17 cc. withdrawn between the twelfth dorsal and the first lumbar. Ninety per cent of the injections were made with the patient in sitting posture. After injection they were immediately placed in the extreme Trendelenburg position.

As a rule, apothesine becomes fixed in about one minute and in doses of 120 mg., or under, does not gravitate. The head down (Trendelenburg) position was used to combat the rapid fall in blood pressure. (At the time these cases were observed ephedrine was not available.) By the time the abdomen was painted and the patient draped the anesthesia was usually complete. In some instances anesthesia did not take place until five minutes after injection. If satisfactory relaxation and anesthesia did not occur after this length of time, gas or ether was substituted.

No patient with a systolic pressure below 110 was given this type of anesthesia, for the

average length of anesthesia was from forty-five minutes to one and one half hours, depending largely upon the dosage and quantity of spinal fluid in which it was dissolved. Nausea and vomiting were best relieved by inhalation of oxygen. No respiratory embarrassment was observed in any of the cases. Six were given intravenous infusion of 1000 cc. salt solution with 50 grams of glucose to bring up the blood pressure.

In the second series, novocaine was used in 254 cases. The technic was practically identical with that used in the previous cases. The dosage ranged from 120 to 150 mg., according to the weight and musculature of the patient. If satisfactory anesthesia did not occur within fifteen minutes, gas, ether or local infiltration was used.

In 145 of these cases ephedrine was given to sustain the blood pressure. The dosage varied from  $\frac{3}{4}$  to  $1\frac{1}{2}$  grains. In no instance did the blood pressure fall so low that it was necessary to administer salt solution intravenously.

At the present time we are using spinocaine and have given it to 78 patients. Each 2 cc. ampule of spinocaine contains novocaine 200 mg., strychnine sulphate 2.2 mg. in a special solvent consisting of alcohol (14.5 per cent) and sterile water with the addition of an amyloprolamin combination to increase its viscosity.

With the spinocaine solution comes a 1 cc. ampule containing novocaine 1 per cent and ephedrine hydrochloride 5 per cent. The latter solution is used to anesthetize the skin and interspinous ligament and also to sustain the blood pressure. The technic followed was that of Dr. Pitkin, the originator of the solution.

As this preparation is lighter than spinal fluid the height of the anesthesia can be fairly well controlled by the posture of the patient therefore the withdrawal and replacement of large amounts of spinal fluid are unnecessary. If a low anesthesia is desired, the patient is placed in about a 20° Trendelenburg position. If it is desirable to have it extend up to the region of the umbilicus, put the head down about ten degrees; if up to the costal margin, allow the patient to remain in the horizontal position for about five minutes, then lower the head of the table about five degrees.

Spinocaine usually becomes effective in five minutes or less, but before substituting another anesthetic, it is always best to wait at least fifteen minutes as occasionally the "take" is slow but just as effective.

In a comparison of these three preparations it may be said that all gave satisfactory results. There were no deaths that could be directly

\* Read at the 72nd Annual Meeting of the Missouri State Medical Association, Springfield, May 13-16, 1929.

attributed to the anesthetic. We discontinued using apothesine because it is more toxic and therefore must be used in smaller doses thus materially shortening the duration of the anesthetic, and it could be obtained only in bulk which necessitated weighing out the dose and sterilizing. This we found occasionally resulted in over-heating and markedly reducing its potency and uniformity. It has the advantage, however, of becoming fixed more rapidly than either of the other preparations and therefore eliminates delay in starting the operation.

Nausea, vomiting, postoperative headache, and sweating occurred in all three series with the proportion about equally divided. The first two symptoms are of short duration and usually appear shortly after the administration of the drug. They can be relieved by deep breathing or inhalation of oxygen. Postoperative headache is seldom severe and in all instances except two was relieved by elevation of the foot of the bed or by acetylsalicylic acid. We believe the cause of the headache is seepage of spinal fluid from the opening in the dura and therefore advise using a small needle, preferably a twenty gauge.

Before beginning the use of ephedrine the marked fall in blood pressure was our greatest worry, because it contraindicated spinal anesthesia in cases in which otherwise it was most desirable. For instance, a blood pressure that was 120/80 before the anesthetic was given, at the end of five minutes would be down to 90/50, and in another fifteen minutes to 55/35. When ephedrine is used there is usually a slight temporary fall and then a rise to slightly above the normal level. The blood pressure in 87 consecutive cases was averaged with the following result: the average pressure before administration of the anesthetic was 128/70; five minutes after the anesthetic, it was 112/65; at this point ephedrine was given and five minutes afterward it was 120/70 and thirty minutes later 128/70.

In the novocaine series the anesthesia was satisfactory and lasted through the entire operative procedure in 92.2 per cent of cases and with spinocaine, in 92.3 per cent. In the remaining seven per cent of the cases, ether, gas or local was given because the spinal wore off before the operation was finished, or that it did not reach a satisfactory level, or did not take effectively. No record was kept in regard to the apothesine cases.

We believe spinal anesthesia has several advantages over other types. Relaxation is perfect, exposure of the operative field is obtained with much less packing off and manipulation of the viscera, so desirable in cases of peri-

tonitis; the intestines are contracted and peristalsis is stimulated; the probability of postoperative lung complications is minimized and there is no injury to the parenchymatous organs,—the heart, liver and kidneys. Individuals with renal disease, respiratory diseases and metabolic disorders are particularly suited for this type of anesthesia. It is especially useful in fractures of the lower extremities as the muscles are completely relaxed and much less manipulation is required. It also reduces the shock by cutting off the stimuli going to the brain from a traumatized area. With the addition of ephedrine the unpleasant effects from the fall in blood pressure have almost entirely disappeared making spinal anesthesia safer and more satisfactory.

Spinal anesthesia has some disadvantages. The anesthetic cannot be accurately fitted to the length of the operation. The dose once given and the operation started, nothing can be done to change the length of the anesthesia and the length is somewhat uncertain, varying with different individuals. Some individuals are too nervous to cooperate sufficiently to allow the spinal puncture. However, preliminary preparation with scopolamine and morphine will reduce this class to a small fraction.

We have had satisfactory results with all three of these drugs and believe the best results will be obtained from that drug with which the operator is most familiar.

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## MEASLES AND THE CENTRAL NERVOUS SYSTEM\*

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Symptoms referable to the central nervous system may complicate almost all of the acute febrile diseases of childhood. McIntosh<sup>1</sup> states that a non-suppurative encephalomyelitis is a constant and normal feature of the infection in epidemic encephalitis, is apparently present in all cases of typhus fever, not infrequent in poliomyelitis and exceedingly rare in chickenpox, measles and mumps.

These complications have shown an apparent increase during the last few years. Musser and Hauser,<sup>2</sup> of New Orleans, report an epidemic of measles during a single winter in which ten cases came to autopsy. The brains showed definite evidence of encephalitis. Grinker and Stone,<sup>3</sup> of Chicago, were able to obtain for study the brains of thirteen children in whom terminal symptoms of severe neuro-

\* Read before the convention of the Florida East Coast Medical Society, Daytona Beach, Florida, June 14-15, 1929.



logic involvement developed in the course of mild upper respiratory infections. These brains likewise showed evidence of encephalitis. It is interesting to note at the same time the increasing number of reports of encephalitis as a complication or sequel of antismallpox vaccination and of antirabic treatment. The cases of postvaccinal encephalitis have been noted chiefly in England and Holland, but similar manifestations have occurred in other parts of Europe and in America.

There are several reviews on the subject of the nervous complications of measles in the French and German literature, but none appeared in English until the recent summary by Ford.<sup>4</sup> He was able to find 113 cases described in the literature and added twelve additional cases. Eight of these twelve cases were found in the records of the Harriet Lane Home among over 55,000 case histories. The other four were obtained from the records of the New Haven Hospital.

#### ETIOLOGY

The true nature of this complication of measles has not been definitely determined. Pathological findings indicate that the process is that of a toxic degenerative rather than an inflammatory process. On the other hand, certain laboratory findings—pleocytosis and leukocytosis—would tend to indicate an inflammatory infectious complication. Rivers<sup>5</sup> advances the theory that the condition may be caused by allergy and that it may be considered as an accident dependent either on the constitutional predisposition of certain individuals or on some chance abnormality of the blood vessels of the brain and cord. Pette<sup>6</sup> suggests that it is a disease of specific, presumably virus, etiology. Bregman and Poncz<sup>7</sup> state that recent researches have disproved the formerly accepted theory that they were due to the same virus that causes the measles and that the now generally accepted hypothesis assumes that these cerebral disorders are due to a neurotropic virus which is present in the organism and for which measles predisposes the patient.

#### PATHOLOGICAL ANATOMY

Creutzfeldt<sup>8</sup> made the microscopic examinations in a case of Mosse's. The brain showed marked congestion and edema, but no other gross lesions. Microscopically he found most of the vessel walls in the white matter loaded with fat granule cells. There were also foci of fat granule cells in the nervous tissue which led him to believe that the foci of degeneration began in the region of the blood vessels. He found areas in which the myelin sheath

stained poorly and showed various swellings and fragmentation. Degenerative changes were found in the nerve fibers and an increase in the glial fibers in the regions about the vessels was noted. He did not discover any hemorrhage.

Siegmund<sup>9</sup> made a histological study on one of Brock's cases. He found the consistence of the brain soft and on the cut surface a high grade dilatation of the smaller vessels, but nowhere hemorrhage. Describing the microscopic picture he says, "The foci are the same everywhere. In the middle lies a dilated vessel with thin walls filled with red cells. Around this is an almost circular rarefaction of the brain tissue. The glia cells are large and rich in cytoplasm in this region. These glial changes merge very gradually into the normal tissues. In fat and myelin stained sections it is evident that in the center of these foci the myelin sheaths are completely destroyed. In their place one finds a collection of glial elements full of fatty granules, which are large in the center of the focus and fine in the periphery. . . . No mesodermal reaction. No leukocytes, lymphocytes or plasma cells. . . . The whole process is characterized by a focal myelin destruction with relatively well preserved axis cylinders, lipoid collections in the glia cells and beginning gliosis in the margins of the foci. The vessels are definitely hyperemic."

Musser and Hauser<sup>2</sup> describe a picture similar to the two above, with the additional finding of scattered hemorrhages.

#### SYMPTOMS

The onset is usually on the fourth to the sixth day of the eruption and is characterized by drowsiness or stupor, associated with a secondary rise of temperature. These may disappear completely within a few hours or the stupor may be more prolonged with headache, vomiting, dilatation of the pupils, muscular twitchings and even convulsions and a general muscular rigidity. In the more severe cases myoclonus, athetoid movements and adiadochokinesis are common. The pupils may be dilated and fixed, with congestion or edema of the optic nerve heads. Another group may show single focal cerebral lesions such as hemiplegias and aphasias. Another interesting sequel of measles is acute ataxia of the cerebellar type with loss of muscle tone, loss of equilibrium, scanning speech, head tremor and a typical "intention tremor." Still another group shows evidence of involvement of the spinal cord with little or no evidence of general involvement of the nervous system. The mind is clear and in this group the picture is that of an acute ascending paralysis, flaccid at first,

with loss of reflexes, but later the reflexes are usually increased and the gait spastic. Death occurs by respiratory paralysis. Among the other nervous complications of measles may be mentioned hallucinosis, manic and depressive states, delirium, excitement states and hysteria.

Attention has already been drawn to the pleocytosis and leukocytosis. There is usually a definite increase in the number of cells found in the spinal fluid. Examination of the blood may show a leukocytosis with high polynucleosis, in contradistinction to the actual leukopenia which usually occurs and persists through the height of the infection with measles.

#### HISTORY OF A CASE

My<sup>10</sup> case has been reported elsewhere, so only a brief summary will be given here:

A. S., a girl of seven years, much underweight, was first seen February 26, 1928, complaining of coryza and cough. The typical measles eruption appeared the following day. The rash began to fade on the third day and on the fourth day there was a secondary rise in temperature to 101.4 F. The patient became irritable and apathetic on the morning of the sixth day and in the afternoon she was stuporous and could not be aroused. There was definite rigidity of the neck. The right upper and right lower extremities were flaccid. The abdominal reflexes were equal and active. Knee jerk response was absent on the right side. Kernig's sign was positive on the left side. Babinski's sign was suggestive on both sides. Pupils reacted to light. Clear cerebrospinal fluid was obtained, apparently not under increased pressure. No film formation. Cells, 36 lymphocytes. Smear, negative. Blood: leukocytes 12,000; polymorphonuclears 86 per cent. The gag reflex was absent and sphincter control was lost. Feedings were given through a nasal tube. On the ninth day the patient began to swallow and on the tenth day she asked for a bed pan. By the twelfth day the patient was apparently normal. The temperature fell by rapid lysis. Subsequent course was uneventful and recovery complete.

#### DIAGNOSIS

In the majority of cases the diagnosis is made on the manifestations of encephalitis occurring during or shortly after an attack of measles. The clinical picture may closely resemble that of epidemic encephalitis or tuberculous meningitis. The differentiating points in the latter condition are the finding of tubercle bacilli, the gradual fall of spinal fluid sugar, the increasing cell count and the slowly progressive course to a fatal termination. Epidemic encephalitis is more difficult to differentiate but its onset is usually more gradual and its duration much longer.

#### SEQUELAE

The most frequent residual symptoms are, in the order named, weakness, mental defect or

personality change, ataxia and epilepsy. They occur in about 65 per cent of the cases.

#### PROGNOSIS

The prognosis as to life is good, the mortality being only about 10 per cent.

#### TREATMENT

The treatment is largely symptomatic. Convalescent measles serum has been employed. Lowenburg and Schaller<sup>11</sup> treated their case by injecting the serum into the spinal canal. McLendon<sup>12</sup> treated his case in a similar manner. The procedure proved to be devoid of danger in their cases and the patients recovered. It is difficult to properly evaluate the therapeutic worth of a given procedure in a condition such as the one under consideration here because of its protean manifestations and its strong natural tendency to improve.

#### SUMMARY

Symptoms referable to the central nervous system, complicating not only measles but also other infectious diseases of children and even certain therapeutic procedures, are apparently on the increase. Most writers use the terms encephalitis or encephalomyelitis to describe this condition.

The etiology has not been definitely determined.

The prognosis as to life is good, but residual symptoms are common.

Treatment, in the light of our present knowledge, is symptomatic.

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## SOME MEDICOSOCIAL ASPECTS

WITH SPECIAL REFERENCE TO DEPENDENCY\*

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A Chinese proverb states that "whatever we have, we have too much of." The statement is sometimes made that we have too much prosperity, or too much in spots, and with equal verity can it be advanced that there is too much poverty.

The poor are always with us and they are our special heritage. The spirit of our medical forefathers has been of the kind to throw about them the mantle of our protection. It is in no wise different today.

The political, financial and social movements of the present period have been to greater organization. The individual independent unit is being lost in the maelstrom of group co-ordinated effort. The outgrowth of the individual and his organization has become the interrelation of his organization with other organizations. This movement must be presaged by the needs of the situation of changing human affairs.

All the highways of medical endeavor lead through the fields of man's social existence. At every cross road and turn is the ever recurring problem of safety and progression. At state road intersections there are older institutions and customs that mark the standards of the past.

The social recognition and segregation of the mentally diseased became in time a specialized medical problem. The protection of society from the criminal demanded separation and punishment. Penitentiaries and jails are mile stones that mark a state of knowledge. In the solution of the problem of the criminal the social minded are turning to the medical profession for help and guidance.

Chief Justice Benjamin Cordoza, of the New York State Court of Appeals, stated recently before the New York Academy of Medicine that a transformation of the present system of punishment for crime would be brought about by the teachings of experts in criminology, psychology, psychiatry and other departments of knowledge related to the study of human behavior. He asked the members of the Academy and the whole medical profession to explore "the dark mystery of crime," the mystery, even darker to the criminal himself in all the deep recesses of thought and will and body.

In the same issue of the *Mental Hygiene Bulletin*<sup>1</sup> is the report of a meeting of the Com-

mittee on Psychiatric Jurisprudence of the American Bar Association and the Committee on Legal Aspects of Psychiatry of the American Psychiatric Association. The present status may be summarized: "These important developments are evidence in the opinion of the American Psychiatric Association, that a rapprochement between the two professions of law and psychiatry is approaching realization. That misunderstanding and conflict will disappear as friendly contacts and the interchange of ideas multiply, it believes is inevitable."

A third large social group that invites medical cooperation is the dependent class. Constituted departments of public welfare of communities and state, community fund associations, private foundations, religious charitable groups, social agencies, dispensaries and clinics, all administer medical service directly or indirectly. The all inclusive term applicable to these activities is community service that springs from a broad sympathy and humanity. The growth in number of groups and the specialization of work have arisen from the need of a service that had not previously been adequately supplied.

The concentration within the cities has progressed from a variety of causes, indicating a spread of environmental forces leading to the same end. The human failure in the country takes recourse to the city and is easily lost in the multitude. His status not infrequently remains the same. The personal handicap still remains with the individual in his new situation and the city has a new obligation. The local problems of the city are many times the problem of the state by priority of origin. Regardless of the number of cases or their origin the care of these people must be supplied. The phase of the matter of particular interest to this Association is the amount and the character of the medical service rendered. All branches in the realm of medicine are utilized to help restore in whole or part the efficiency of the individual. The establishment of an independent unit of society is the common goal medically and socially. This is attained too infrequently, so that social and medical supervision must be continued.

The character and scope of the medical work in a large city is necessarily all inclusive of the many handicaps in mind and body limiting, temporarily or permanently, the usefulness of the individual. The gamut of human ills has many duplications and from these the volume is produced. In one large agency, doing general family case work, there has been an increase in the past five years in expense for relief alone from \$54,707 in 1923 to \$141,394 in 1928, or 158 per cent.

Concerning numbers of cases handled in

\* Read at the 72nd Annual Meeting of the Missouri State Medical Association, Springfield, May 13-16, 1929.

1. *Mental Hygiene Bulletin*, Jan., 1929.

these same years the annual report of the general manager contains the following statement: "All the families served, could they have been gathered in one place, would constitute a city equal in size to Columbia, Mo. There were 3973 families or about 17,850 individuals. In 1928 the number increased to 8,549 families or about 37,500 individuals making a city equal in size to Alton, Illinois. An increase of 115 per cent."

Another relative view with a greater index to the general volume of work of the city may be gained from a review of the figures obtained from the social service exchange. Because of the many phases of social work the several agencies, amounting to 85, have recourse to a system of registration of their cases. This is a clearing house to avoid duplication of effort. It likewise serves the purpose of putting agencies in touch with each other so that it becomes known which agencies have worked or are working with a family. The family record may in this manner be made a continuous story. The figures to be given must be qualified for the reason that all inquiries at the exchange do not relate to dependent families. There is a fairly constant number in total inquiries handled in the past four years and it is presumably correct to suppose that the same proportion of kinds of inquiry exist today as formerly:

In 1925 total inquiries were 30,773, new cases 21,799  
In 1926 total inquiries were 29,761, new cases 18,062  
In 1927 total inquiries were 32,594, new cases 20,452  
In 1928 total inquiries were 37,303, new cases 21,485

The social agencies continue to carry the identified cases together with the attending medical problems. The new cases in like manner present the same proportion of medical factors. To present accurate statistics concerning the new dependent, medical events from the mass of inquiries or their correlation to former periods would be a herculean task, if at all possible.

A thoroughgoing social working plan for these families could not be evolved without first evaluating the physical and mental components of one or more units of the family. It is roughly computed that in 90 per cent of these families a medical problem presents itself, either basically as the cause of the dependency or as a factor incidentally uncovered. There are 50 agencies in the Community Council in St. Louis and they all have recourse to the many sources of supply of medical guidance and care. The volume of medical work cannot be fairly or safely approached.

The president of the Provident Association in his last annual report remarks that, "Long

since we recognized the need for special attention to the medical aspects of our work even going to the extent of authorizing the appointment of a special committee. This committee has never been started simply because the time of staff members was too crowded to permit of the additional task."

It may be pertinent to ask what are the interests of the medical profession in the projected inquiry?

Rowland Haynes in a discussion of factors entering into condensation of dependency in cities states that "The cost of medical care is an item to which social agencies are now giving serious consideration and study, with a view to finding out if the person of average income can actually pay the cost of keeping well, and if not, what becomes of him. Obviously if he cannot pay the price himself he either becomes a free patient or finally fails in health and becomes dependent." The foregoing if followed to the bitter end affects the physician, first by a contribution of service, and second, if dependency is complete, in community support in the form of taxes.

The nonresident dependent population in a large city cannot be accurately computed. That the figures are large cannot be denied. The problem was of sufficient magnitude as affecting the social agencies, to call for a special study by a special committee of the many agencies. One hundred cases were studied to obtain a cross section of the situation.

In a report of the work by T. J. Bruno wherein comment is made on the advances attained in social work, occurs the statement: "Skills have been made available for it (social work) from related fields of study—principally economics, medicine and psychology." Further in the report is the significant statement, concerning the motive for coming to St. Louis: "The outstanding reason, both given and verified, is the presence of medical resources in St. Louis and their absence elsewhere. A study made last April of the first 33 cases presented to the committee showed important medical problems in thirty cases. This does not mean that all came to St. Louis for medical treatment. Some of them, however, do definitely migrate for that reason."

From this it would seem that the same high relative amount of free medical care obtained among transients as in the permanent residents. To give the matter local importance, a review of twenty-five cases shows that nine cases originated in Missouri. This gives a percentage of 36. Another fact revealed is the frequency with which the unmarried mother comes to the city. There is apparently a double purpose



supplied; namely to be lost in the crowd and obstetrical care.

In various parts of the country there are movements to provide medical care for those who can only pay in part for the service rendered. Organization, group method, lowered pro rata overhead, endowments, all are factors variously applied in an attempt to bring medical care within the reach of those who have no desire to be pauperized.

Serious attention and thought by the leaders of organized medicine are now being given to this subject. The solution is still in the process of formation. In this connection it is interesting to note the plan proposed by Dr. M. L. Harris, President-Elect of the American Medical Association:

"If every county society would organize an institution of this kind and assume control of the entire medical situation, I believe that the profession would have this question solved and would be fulfilling its entire obligation to the people and that the institution would be helped and fostered by these great foundations which they state, and acknowledge, they are perfectly willing to do. It would not interfere in the least with private practice, because all members of the community who are able to pay the regular fees should have their own physician and should not be eligible to receive service in the institution. But no person should be excluded from the institution because of his inability to pay the amount that he should pay, which fact, as I say, is to be determined entirely by his economic condition.

"I believe that this would be the solution of this economic question which is pressing the profession hard today and would enable the profession to assume direction and control of all matters relating to the care of the sick."

This situation is calling for the best serious thought. The final solution has not been set forth. It clearly is not a problem for the individual physician. He must put his personality in his organization. His organization must work out difficulties, keeping in mind fundamental organizational objectives. This does not call for a desertion of the standards of the past but it does imply a change of method. A page from other advancements in social coordination will be of help. The wide ramifications lead to collateral fields of endeavor. Community of interests require the meeting of special committees from allied organizations. These in part are dynamic equivalents that attract and repel in a constructive formulation.

Dr. William A. Pusey, past president of the American Medical Association, in a discussion voiced this opinion: "I am quite at one with Dr. Harris in believing that either the

medical profession has got to practice medicine cooperatively through intelligent efficient business organization or the laymen are going to do it for us."

What action and concrete effort can this Association advance in the form of a workable plan that will permit the approach to the fulfillment of ideals concerning the sick socially dependent and at the same time equitably administer to the interests of our members collectively and individually?

823 Metropolitan Building.

## PRIVILEGED COMMUNICATIONS\*

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COLUMBIA, MO.

Under the English Common law, there was no privilege as to communications between physician and patient. But in 1831 the Missouri legislature passed an act concerning witnesses which is as follows:

Section 17. No person authorized to practice physic or surgery, shall be required or allowed to disclose any information which he may have acquired from any patient, while attending him in a professional character, and which information was necessary to enable him to prescribe for such patient as a physician, or do any act for him as a surgeon.

This act (which may be seen in Revised Statutes of Missouri 1835, page 623) has been the law of our state ever since 1831, and the same in substance, with an amendment, now appears in Section 5418 Revised Statutes of Missouri, 1919. It is said that Dr. William Jewell, a practicing physician, the founder of William Jewell College at Liberty, then state senator from Boone County and also mayor of Columbia, was the author of this law. It is indeed appropriate that a statute, which was written by one of the early and leading members of the medical profession of this county, and the enactment of which was secured by his efforts, should be the subject of discussion at a meeting of the Boone County Medical Society. In those primitive days in Missouri lawsuits were bitterly contested and all sorts of evidence was offered for the consideration of court and jury; hence the necessity of a statute to prohibit evidence of confidential communications. Time and again this statute has been before the Missouri Supreme Court, and each time it has been upheld and strictly observed. One of the first things my honored law teacher, Judge Philemon Bliss, formerly of the Missouri Supreme Court, told the class of

\* Read before the Boone County Medical Society at its Annual Dinner Meeting, Columbia, December 3, 1929.

which I was a member, when studying the subject of evidence, was that five classes of persons were incompetent to testify: First, a person of unsound mind; second, a child of tender age; third, a lawyer concerning any communication made to him by his client in that relation; fourth, a minister or priest concerning a confession made to him in his professional character in the course of discipline enjoined by the rules of practice of such denomination; and fifth, a physician or surgeon concerning any information which he may have acquired from any patient while attending him in a professional character, and which information was necessary to enable him to prescribe for such patient as a physician, or act for him as a surgeon. The reason for such law, as we have often been told, is that a patient should be perfectly free to fully inform his physician or surgeon regarding his physical condition, his pains and aches, if you please, as well as what he has done or has not done to bring about his suffering condition. Such information has long been considered necessary to enable the physician or surgeon to render the service needed by a patient, who has physical or mental troubles. Some persons have thought, and so stated, that this rule was enacted for the protection of the physician, to enable him to "bury his mistakes," as humorists have often expressed it; but that is an error. All authorities hold that the rule was enacted for the protection of the patient who does not wish to have one intimately acquainted with his or her physical status disclose his knowledge on that subject to any and every person. Medical societies, as well as bar associations, have often condemned the practicing physician or practicing attorney who discloses what has many times been termed "professional secrets."

Our Supreme Court has held that communications to an attorney, regarding a lawsuit, are privileged, even though the party pays no fee and does not employ the attorney. And the same court also said that where a litigant consulted with an attorney, but paid no fee and later on employed another attorney, and the first attorney was employed by the opposite party in the lawsuit, the first attorney was incompetent to testify to communications made to him by the litigant. Of course, the communications between attorney and client must relate to matters confidential. An English law writer many years ago said, "Communications from clients to attorneys are privileged on the ground of public policy, with a view to the safe and pure administration of justice. This rule was adopted out of regard to the interests of justice, and from the necessity of

free and unrestrained intercourse between counsel and client."

So communications between physician and patient are excluded, as above stated, for the protection of the patient; and because of the necessity for a full and free discussion of the condition of the patient with the man who can, if fully informed, many times materially aid in bringing about a cure, but who, if not fully informed, will in all probability do something that will hasten death. Our Supreme Court has even said that a physician is incompetent to testify against the objection of a patient, or against the objection of an administrator or executor of a deceased patient. And that court further said that a physician cannot testify against his patient and disclose his treatment of various ailments during a period of years preceding the accident causing the injury complained of, even though the patient claimed that the accident caused such injuries.

Our present statute declares communications to be privileged when made to "a minister of the gospel or priest of any denomination, concerning a confession made to him in his professional character, in the course of discipline enjoined by the rules of practice of such denomination." This statute has been construed to mean that such communication to a religious adviser is not privileged unless the same is made to him in his professional character, and also made in the course of discipline enjoined by the rules of practice of such religious denomination. As you know, the Roman Catholic Church and some other churches have the confessional; and some Protestant churches have officers or committees whose duty it is to look after an erring member, converse with him concerning his mistakes and secure from him a promise to do better. All such communications are privileged. But the admission of the commission of a crime, made by one to a minister of the gospel, when not made in the course of any discipline enjoined by the rule of a church, is not privileged.

Not only is the physician prohibited from testifying to what the patient said to him while the relation of physician and patient existed, but he is also prohibited from disclosing what he discovered while examining or treating the patient. In holding that the physician must use his eye as well as his ear in the treatment of a patient the court said that the confidential nature of information obtained was not confined to communications made by the patient to the physician, but that the veil of privilege protected everything that was disclosed to any of the senses of the physician, or which was



brought to his knowledge in any way, to enable him to prescribe for the patient.

A physician employed in a hospital operated by a railroad company, who treats a person injured by such company, cannot testify to anything that he learned by reason of such treatment, without the consent of the person treated. And the law is well settled that the veil of secrecy extends to a physician who is called in consultation, no matter whether called by the attending physician, by the patient, by a friend of the patient or by a total stranger. And this statutory privilege extends to a partner of the attending physician, to the clerk or nurse in the physician's office and to an interpreter through whom the physician communicated with the patient. It is not necessary, in order to create the relation of physician and patient, that the physician should actually treat the patient. If he visits the hospital and makes an examination of the patient, with the knowledge and consent of the patient, the patient believing that the examination is being made for the purpose of treatment, then the relation is created by implication; and it is wholly immaterial what the secret object or purpose of the physician was in making it. In a case where a railroad company sent its physician to a hospital to see a person who had been injured by the alleged negligence of said company, and the physician told the patient that he wanted to examine him in order to prescribe for him, but did not prescribe, the knowledge derived from such examination was held to be privileged. A physician was sent to see a patient who had been injured in a railroad accident, the physician being the railroad physician, and he stated to the patient that he called to consult with the attending physician, to approve or disapprove of the treatment, and if necessary to administer treatment. The railroad physician then asked the details of the accident, made a memorandum thereof, which he had the patient to sign; but the court held that such paper was inadmissible in evidence; and would not permit the railroad physician to testify to the condition of the patient. And in a case where one of the hospital physicians visited a patient in company with the patient's regular physician, not for the purpose of treating the patient, but, as he said, "out of curiosity, and to acquire information in an interesting case," the New York court said that such visiting physician was disqualified. In the course of that opinion, the court said: "To bring the case within the statute it is sufficient that the person attended as a physician upon the patient and obtained his information in that capacity." And the Missouri Supreme Court, in a case where a boy was injured by a freight elevator in a

building and the owner of a building sent him to the office of a physician for treatment and also for the purpose of having the physician ascertain how the injury occurred, that, under such circumstances, the interview between the physician and patient could not be split into parts, one part competent and the other part incompetent, but that the whole of the interview was privileged. And the court went so far as to hold that where a physician asked the patient certain questions it must be presumed that such questions were asked in order to enable him to prescribe for the patient; otherwise, such questions would not have been asked. And in the same case the court also said that the information, in response to those questions, would not have been imparted except for the purpose of aiding the physician to prescribe for the patient. In Colorado a corporation established a hospital for use in the care of its employees which was supported by deductions from wages of such employees, it was held that an employee of the company, after sustaining an injury and putting himself under the care of the physician employed by the company, was entitled to claim the privilege existing between physician and patient.

But not everything said by a patient to a physician, or seen by the physician, is privileged. When a physician was present at the time of the accident, heard the patient say to him and to others how the accident occurred and saw that the patient was then badly intoxicated, the court decided that such physician could testify to what he then saw and heard, although he later treated the patient. And statements made by an injured party regarding the nature and extent of his injuries, made to the physician examining him by order of court during the pendency of a damage suit, are not privileged as the physician does not examine him for the purpose of treatment. Where a lady received personal injuries, sent for a physician, had him to examine her, told him that she intended to bring a suit for damages and for him to fix up a big bill for his services and thereby help her to get a large judgment, the court decided that such communication was not within the provisions of the secrecy statute, as such communication did not contain necessary information for the physician to successfully treat the patient. So, where a patient claimed that she had been injured to such an extent that she could not walk without the aid of two crutches, she walking in the court room on crutches, but her physician testified that he visited her home shortly before the trial of her damage suit and found her walking, and that she walked up one flight of stairs without the aid of crutches, his testi-

mony on that subject was held not to be privileged in view of the fact that his visit to her was not for the purpose of treating her, but for the purpose of collecting his bill for treatment. And in a suit against an accident insurance company, the widow of the deceased assured claimed that he fell out of a window at a hospital and was killed, but the insurance company claimed that her husband committed suicide by jumping out of a hospital window. The court held that it was competent for the physician who treated her husband for tuberculosis to testify that some time before his death her husband stated to him that life was not worth living and that he had might as well jump in the river. The reason assigned by the court for such holding was that such information was not necessary to enable the physician to prescribe for the patient. It will, therefore, be seen that in order to be privileged, the information must be such, first, that the physician or surgeon acquired from any patient while attending him in a professional character, and, second, it must be information that was necessary to enable the physician to prescribe for such patient, as a physician, or to do any act for him as a surgeon.

But, like most rules, the rule prohibiting a physician from testifying against his patient, and prohibiting a lawyer from testifying against his client, has been used as a cloak to shield persons guilty of violating the law; and in some instances physicians and lawyers have aided such persons by refusing to disclose matters that have come to them by reason of the relation of physician and patient, or lawyer and client. No one more than your speaker has a higher respect for the lawyer or physician who treats as confidential the professional interviews in his office, in the sick room or in the court room; but there should be a limit to the secrecy to be observed. The Missouri Supreme Court has decided that where a party advises with a lawyer regarding his intentions to commit a crime, or for the purpose of being guided or helped in its commission, or for the purpose of being aided in procuring the division of the fruits of the crime, the statements made by that party to the lawyer cannot be treated as confidential, and that the lawyer may testify to such statements in a criminal prosecution against the client. In a bribery case, the defendant advised with a lawyer as to the best way to secure his part of the "slush fund," and also detailed the facts connected with the bribery of himself and others; and the court said that such communication was not privileged, and that the lawyer could properly testify to the same at the trial of his client on the bribery charge. The reasons given by

our courts for so holding are that the high position of practicing law cannot be prostituted by making it a means of aiding criminals; and that it is no part of an attorney's employment to advise or hold professional communications as to the manner of committing a felony or fraud; nor to devise means to avoid the punishment which such conduct justly merits. And our courts have further said that neither the employment of an attorney to advise or assist one in the commission of a crime, or to induce a confederate in crime to divide the fruits of that crime, nor to induce a confederate to flee the country and not testify, can be held to be a matter of professional confidence; and that neither comes within the scope of professional employment, and that neither can be considered privileged. And an eminent law writer on evidence, when speaking of advising with a lawyer for such a purpose, said, "A communication in furtherance of a criminal purpose does not come into the ordinary scope of professional employment." And the same rule holds true regarding communications to a physician or surgeon by one seeking advice as to the best method of committing murder, procuring an abortion, administering poison or inflicting physical injuries.

But even though a communication be made by a patient to a physician, or by a client to an attorney, privileged at the time it is made, the same can be waived by the patient or by the client; and if it is once waived it remains waived until the determination of the case, no matter how many trials may be required. A party cannot give to the world the secrets of the sick room through her chosen physician, selected for that purpose, and yet claim the privilege as to all other physicians whom she had treat the same injury or trouble. I recall a leading case where a party and one physician testified to her condition at a certain time, the court held it proper to contradict that party and her physician by two other physicians who treated her during that time. The court very properly said that when a party opens up a question that is a privileged one he cannot afterwards object to evidence from the opposite party of the same kind on the claim of professional privilege. And in a case where a party took the deposition of his physician on the subject of his treatment of the party's physical ailments, and the physician testified in substance that his ailments were trivial, it was held that that deposition could be read by the opposite party at the trial, although ordinarily the physician could not be called as a witness to give evidence of the patient's condition without the consent of the patient. One of the leading Missouri cases on this subject



may be found in Volume 208 of the Supreme Court reports, in which Judge Henry Lamm, in his characteristic style, said: "I am furthermore of the opinion that when the plaintiff tendered to the jury the issue as to her knee both before and after the injury, which she did, and when she withdrew the veil of professional secrecy by introducing as a witness one out of a number of physicians who had examined her knee, and by his testimony made public the result of his investigation as to its condition, she waived her privilege of privacy and confidence as to any of her other physicians in relation to the same subject matter. A litigant should not be allowed to pick and choose in binding and loosing,—he may bind or he may loose. If he binds, well and good; but if he looses as to one of his physicians the seal of secrecy is gone,—the spell of its charm is broken as to all. May one cry secrecy! secrecy! professional confidence! when there is no secrecy and no professional confidence? As well cry, peace, peace, when there is no peace. To hold so leaves a travesty on justice at the whimsical beck and call of a litigant. He may choose a serviceable and mellow one out of a number of physicians to fasten liability upon a defendant, and then, presto! change! exclude the testimony of those not so mellow and serviceable, to whom he has voluntarily given the same information and the same means of getting at a conclusion on the matter already uncovered, by professional testimony to the jury. There is no reason in such condition of things, and when reason ends the law ends. The right to secrecy is confidential and professional matters may be likened unto salt. But what if the salt has lost its savor; wherewith may aught be salted?"

Again, when a patient brings suit against a physician for malpractice, the confidential relation ceases and the physician may testify to what he saw in the treatment of the patient as well as what he learned from conversing with the patient. The Missouri Statute of 1919 requires the state board of health to designate what diseases are infectious, contagious, communicable or dangerous and make and enforce regulations to prevent the spread of those diseases. Under this statute the state board requires a physician to make a report of certain diseases, and the physician should make such a report as required; but the making of such a report cannot be considered a violation of a professional secret. The reason for this is that the state has a right to be informed of the existence of certain diseases, for the benefit of the public, in order that means and measures may be adopted to prevent the spread of such diseases. And, when a patient has

died, the Missouri statute requires that the attending physician shall certify to the cause or causes of such death that the same may be filed with the bureau of vital statistics. The filing of such a certificate cannot be considered a breach of the confidential relation, as the state is interested in the health of its citizens and is entitled to know the causes of the disease as well as the causes of death. So, the filing of a birth certificate by a physician, in accordance with the Missouri statute, is not a violation of the rule of secrecy, although such certificate sometimes shows that the child is afflicted or is illegitimate.

From all this, it will be seen that a physician or surgeon cannot testify to information he may have acquired from a patient while attending in a professional character, which information was necessary to enable him to prescribe for such patient as a physician, or do any act for him as a surgeon, unless the patient waives such privilege; and if the privilege is once waived it cannot thereafter be claimed. And it should also be remembered that the question of privilege does not depend upon whether the physician or surgeon was compensated for his services by the party claiming the privilege or by any one.

Guitar Building.

#### STUTTERING CHILD NEEDS SYMPATHY, SKILLED CARE

A speech defect is an outstanding factor in the life of the person suffering from it. A child with a speech defect is in a constant state of fear. His body is tense and he suffers from a mental uneasiness, a longing to vanish from the sight of others.

How it feels to have a speech defect is described in the September issue of *Hygeia* by Wendell Johnson, who says that he has stuttered for eighteen years.

A child who stutters soon realizes that he is different from other children and feels his defect is an inferiority. He becomes despondent and often ill-humored. Parents and teachers should make every effort to study the problems of the stuttering child and help him to develop compensations. He may become proficient in sports and games; he may excel in scholarship, though he should not be forced to recite orally, Mr. Johnson believes.

To those who have children with speech defects in their charge, Mr. Johnson makes the following suggestions:

Never allow a child to be unduly aware of the fact that his stuttering makes him inferior to other children.

Never make fun of the stutterer or scold him for stuttering.

Never force a left-handed child to become right-handed. The most common type of stuttering is caused by shifting a left-handed child to right-handedness.

Never prescribe a cure for stuttering. It can be treated only by an experienced speech pathologist and no effort should be spared to obtain such treatment.

## WASHINGTON UNIVERSITY CLINICS

### MYOSITIS OSSIFICANS PROGRESSIVA

DAVID P. BARR, M.D.

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Progressive ossifying myositis is an extraordinarily rare disease. The clinical picture is remarkable. A child is born of a normal and healthy family in a normal way. It is usually noted at birth that the infant has short, adducted great toes. Since Helferich first described this deformity more than 75 per cent of the cases have revealed it. Other deformities have been noted. The thumbs are described as shortened, adducted and ankylosed in the metacarpophalangeal joints. The general health of the child is usually excellent until the active manifestations of the disease commence. These start often without apparent cause. There may be a history of a fall, a cold, some minor infectious disease preceding the attack, but more often no cause can be assigned. Active symptoms may appear as early as the fourteenth day or as late as the thirty-fourth year. They have been reported at birth.

Somewhere in the musculature of the body, more frequently in the muscles of the neck, chest, shoulders or back, a swelling appears. This grows rapidly and in the early stages may be quite soft. It is exquisitely tender; the skin over it is hot, reddened and engorged. The lymph glands of the region may be enlarged and tender. There is some fever (seldom over 101°F) and the child feels disinclined to play. In some cases, the disease has started with hot, painful exostoses from one or more bones of the skeleton, usually from the clavicles, ribs and skull.

These symptoms last for two or three days or even longer. The swellings then begin to decrease in size, the signs of inflammation subside and the temperature returns to normal. In some cases the swellings may entirely disappear. More frequently, as they diminish in size they become progressively harder until, at last, in place of the large, diffuse swellings, only small bony nodules remain.

The disease progresses by a repetition of these acute attacks. Weeks or months of complete quiescence may elapse between the seizures or the progress may be almost continuous. In many cases the attacks do not follow the course outlined above. The progress of the disease may be marked only by gradually appearing swellings and slight tenderness over the muscles or bones affected. By whichever

method it progresses, the typical deformities of the disease sooner or later occur. There is limitation of motion in the joints, especially in the shoulders. There are multiple nodulations in the muscles and exostoses on the bones. There is rigidity of the spine often with marked curvature. The head is held far forward, the chest is immobile and the patient becomes a hopeless, helpless invalid.

Death occurs usually within fifteen years from the onset of the malady, most often due to some intercurrent affection. Because of the immobilization of the chest with the consequent interference with respiration, most of the deaths occur from some pulmonary disease, usually tuberculosis or pneumonia. Others die of sepsis from bedsores resulting from constant invalidism.

The following cases were seen fifteen years ago and are now recorded because of the rarity of the condition.

Case 1. The patient was first seen as a boy of four. No other members of the family are known to have had symptoms similar to his. He was born at full term, normally and without instruments. It was noted by the parents at the time of his birth that both great toes were short and adducted. The mother stated that the patient was always clumsy and that he fell more often than her other chil-



Fig. 1. Case 1. Showing fixed position of shoulders and short thumbs.





Fig. 2. Posterior view of Case 1 showing nodules of abnormal bone formation. Also the extreme limit of abduction of the arms.

dren. The child seemed perfectly healthy until the age of two years when he had whooping cough. A short time after this attack a diffuse, hot, tender swelling appeared on the right side of the back, making him look (according to the mother's statement) like a hunchback. During this time he had some fever. He was taken to a hospital where his parents were told that he suffered from a tuberculous spine. He was treated with a cast for nine months. When the cast was removed the swelling had subsided and only a few, hard lumps remained beneath the right scapula.

During the next year many swellings of a similar nature appeared in the muscles, the pectoral regions, the right flank and the left lumbar region. The shoulders, which had previously been broad, became hunched and narrow. Exostoses appeared on the head, clavicles and ribs. Most of the swellings subsided with the formation of hard, bony nodules. Two of them which occurred, one on the inner side of each knee, disappeared entirely, although evidence of their presence is shown in the X-rays by small, bony nodulations on the medial tuberosity of each tibia. The boy was brought to the hospital because of an injury to his head which he incurred from a fall in the street.

He was first examined a week after his fall. His appearance at the time is well shown in Figs. 1 and 2. He was three feet, five inches in height and weighed 39 pounds. He stood with his head tilted toward his chest and with his shoulders forward, causing the arms to hang far in front of the body. He was able to walk and even to run but with the body held stiffly.

His head was held far forward because of a stiff neck. Motion anteroposteriorly was almost completely limited. Over the left parietal bone there was a soft and fluctuating swelling, at whose edge a ridge varying much in firmness was found. At



Fig. 3. X-ray of Case 1, showing bone formation in the left quadratus lumborum and the right latissimus dorsi muscles.

the posterolateral portion were two well defined nodules of bony hardness while along the other borders the raised edge was not so hard. In the right parietal region there were several small irregularities of the bone but no exostoses.

His mouth was unusually small and the lower jaw was under-developed and the lower set of teeth lay a quarter of an inch back of the upper when the mouth was closed. The teeth were normal in number but were widely spaced on the upper jaw.

Because of the muscular deformities, the expansion of the chest was almost imperceptible. The breathing was entirely abdominal. At the clavicular insertion of the sternomastoid there was a small exostosis extending from the bone into the tendon of the muscle. On the left clavicle there was also a small exostosis in the middle third. Both tendons of the pectoralis major muscles were tender to palpation and the tendon and belly of the right pectoralis major were bony, hard and nodular. Two bony nodules were felt in the axillary space. These seemed to come from the floor of the axilla, probably from the ribs. Similar nodules were felt in the left pectoralis tendons. On the eleventh rib, just back of the posterior axillary line, there was a large exostosis, tender and apparently broken. The deltoid muscles were uninvolved but were small and atrophic. The coracobrachialis muscles were hardened on both sides. The motion of both shoulders was greatly limited in all directions. Move-



Fig. 4. X-ray of Case 1, showing spurs of bone near the upper end of the tibia.

ments of the elbow and wrist joints were not affected. The thumbs were shorter than normal but there was no ankylosis. The spine showed a left thoracic and a left lumbar scoliosis. There was a small exostosis on the third lumbar vertebra. The left suprascapular muscles were unusually firm but not stony hard. The right latissimus dorsi was hardened at its tendinous insertion. There seemed to be a solid mass of bone extending from the humeral insertion of the muscle across to the scapula the outlines of which were obscured. Movement of the scapula was practically impossible. Just below the lower angle there were three nodules rising from the plate of bone. The largest was 7.5 cm. in diameter, stony hard and irregular in contour. On the left side the latissimus tendon was hardened and showed nodulations. At the tip of the left scapula there was a small nodule similar in location to those on the right side. The left quadratus lumborum was stony hard and nodular, feeling almost like the spines of a second line of vertebrae. The abdominal muscles were soft except in the right flank where a plate of bone extended in the oblique muscles from the eleventh rib to the iliac crest. The muscles and joints of the legs were comparatively uninvolved. The great toes were short and adducted. They measured 2.7 cm., the first phalanx constituting only 0.7 cm. of the total.

Urine and blood examinations revealed no abnormalities. The Wassermann reaction was negative.

While the patient was being observed a new mass appeared over the lower dorsal vertebrae. This was firm in places, quite soft in others, tender in none. There were no signs of inflammation over it or in the surrounding tissues. The temperature was as on preceding days, slightly subnormal. This mass



Fig. 5. X-ray of foot of Case 1. The great toes are shortened and adducted.

remained for a week slightly increasing in size but with no inflammatory symptoms. It was then found that the lower portion of the mass was exquisitely tender. The temperature rose to 100°. The child felt no pain but during the day showed a disinclination to play. There was no edema, redness or engorgement of the part. The tenderness remained for three or four days, gradually decreasing in severity. Simultaneously, the size of the mass became smaller until finally only a narrow hard ridge remained as evidence of the inflammation.

Later a similar lesion occurred in the right latissimus dorsi extending down to the flank; still later the left biceps became involved. Three weeks after his fall an operation on the head revealed an old hematoma beneath the pericranium. At the margins the pericranium was thickened and formed a hard, elevated ridge. Grossly, this did not appear to be osseous in structure. There were, however, bony deposits through the tissues and the two hard nodules at the back seemed of bony consistency. A piece of the softer portion of the edge was removed from the nodule beneath the right scapula.

Microscopically, the wall of the hematoma of the scalp consisted principally of cartilage and osteogenic connective tissue supported upon muscle tissue. The cartilage cells and matrix were considerably degenerated. There was a small piece which showed a quite different structure, consisting of whorls of connective tissue resembling fibroma. The specimen taken from muscle between ribs consisted of bone trabeculae and cartilage with a thick layer of osteogenic connective tissue showing only slight inflammatory changes.

Case 2. This was a man of 21, born in Italy. He came of a hardy family in no members of which had there been symptoms similar to his. The deformity of his great toes was noted at birth. The first symptoms of muscular difficulty appeared after an attack of scarlet fever at the age of eleven months. Deformities appeared rapidly, most of them being fully developed before he could remember. At the age of 15 he fell on a stone flagging and it was supposed that he broke his right hip. He was hospitalized for five months but at the end of this period





Fig. 6

Fig. 7

Fig. 6. Side view of Case 2. Note the deformity of the back and the fixed position of the left arm.

Fig. 7. Case 2 exhibiting the restricted, long thorax, short thumbs and short adducted great toes.

still had marked disability of the hip. It was found later that no fracture had occurred but that the disability was due to a large plate of bone which had formed in the gluteus muscles following the injury.

When he was 19 he began to have severe, almost constant headache with double vision and vomiting. The double vision was not constant but the vomiting was persistent and occurred twice a day. A few months before admission he was troubled with dizziness but did not fall. He had no difficulty in walking; no convulsions; his eyesight was good. Examination at this time showed a choking of the discs of both eyes but no other positive signs of intracranial pressure. Because of the character and persistence of the symptoms, however, a right temporal decompression operation was performed. Slightly increased intracranial tension was discovered but no other pathological changes. Recovery from the operation was uneventful. The vomiting, dizziness and double vision disappeared but the headache continued. Moreover, shortly after leaving the hospital the patient noticed pain in the right temporal fossa on moving the jaw. The motion of the under-jaw became limited until it was impossible for him to open his mouth more than a quarter of an inch. It was because of this that he entered the hospital.

His appearance at this time is well portrayed in

Figs. 6 and 7. He was five feet eight inches tall and weighed 130 pounds. His body was tilted forward from the hips and was held stiffly. He was quite unable to sit down. On the forehead were two large, irregular scars, but no bony depressions or exostoses. In the right temporal region there was the scar of the decompression operation beneath which a soft area where the bone had been removed could be felt.

The mouth was small and the mandible was under-developed. The lower set of teeth closed about a quarter inch behind the upper. The two central incisors on the upper jaw were large compared with the other teeth. The mouth could be opened only a quarter of an inch. Any attempt to open it farther caused much pain in the region of the right temporomandibular joint. The right temporal muscle was hard but not nodular. Pupils reacted to light and accommodation. There was no strabismus but a slight vertical and lateral nystagmus was found. Sight was not impaired. Examination of the eyegrounds showed that the right disc was indistinct in outline, otherwise the fundi were normal.

The chest was without hair and was unusually narrow and long. Only two fingers could be introduced between the twelfth rib and the iliac crest. The chest measured but  $29\frac{1}{2}$  inches at the level of the nipples. The expansion was only three fifths of an inch.

The muscles in the posterior triangle of the neck were stony hard and the motions of the neck were limited in all directions. The clavicles receded at a sharp angle from each other. The right clavicle seemed to be disarticulated from the acromion and protruded as a bony mass about the scapula. The deltoid muscles were small and atrophic. There was slight calcification in the lower portion of the right muscle but none in the left. The pectoralis major muscles were calcified and nodular, not only along the tendon but in the body of the muscle. Just posterior to the pectoralis tendon there was a line of stony hard nodules the origin of which cannot be definitely determined. Both shoulder joints were drawn far forward. The left shoulder was much lower than the right. Motion of both shoulders was limited in all directions. The muscles of the arm and forearm showed no involvement, with the possible exception of the right coracobrachialis tendon which seemed to be hardened. The elbow joints were normal. There was a grating at the wrist joint when motion was attempted. Dorsal flexion was limited on both sides. On the left hand, at the base of the thumb, there was a wound of an old cut. Protruding from this was a calcified area, apparently arising from the bone beneath but also involving the skin. The thumbs were noticeably shortened the other fingers being of normal length. Lateral motion at the first metacarpophalangeal joints was much diminished. The carpometacarpal joints were also stiff. The thumbs were adducted and held close to the side of the hand. The muscles of the back were extensively involved. The outlines of the scapulae were almost entirely obscured. The left scapula could be moved slightly; the right scapula was fixed. Both were drawn close to the chest wall. At the lower angle of the left scapula there was a small nodule. On the right side, in the same position, there was a very prominent mass raised far



Fig. 8. X-ray of Case 2, showing short adducted great toe and ankylosis of first and second phalanx.

above the level of the surrounding parts and apparently arising in the latissimus muscle. It measured 12 cms. in its long, 10 cms. in its short diameter. The quadratus lumborum muscles were prominent and stony hard. The left muscle was slightly nodular. The spine itself was rigid. There was in the thoracic region a marked kyphosis and a scoliosis. In the lower extremities the right hip joint was most affected. Flexion was limited. Extension and abduction were slightly limited and rotation was absent. Extending from the bone along the upper portion of the gluteus maximus tendon there was a hard plate of bone about five inches in length and about two inches in width. This was lost in the fleshy part of the gluteus muscle. Below this bony plate there seemed to be some thickening of the upper portion of the shaft of the femur. The motions of left hip were unimpaired. There was no involvement of gluteus muscles. No exostoses from the femur were present.

Both great toes were short and adducted. No dorsal flexion at the metatarsophalangeal joint was possible. Plantar flexion was unimpaired. No joint between the phalanges and the first toes could be discovered.

While under observation the patient showed no symptoms of advance in the disease. He complained, however, of daily headaches which were always relieved for several hours by small doses of phenacetin. During the course of a year the headache became more severe and was accompanied by dizziness and occasional nausea and vomiting. Examination of the eyegrounds showed indistinctness of the outlines of both discs with a moderate engorgement of the retinal veins but without elevation of the discs. Careful X-ray examination of the skull failed to reveal any evidence of exostosis or bony tumor.

#### DISCUSSION

The resemblance in the appearance of these two patients of such different ages and nationalities was most striking. The similarity was not confined to the muscular deformities; it was also seen in the shape of their faces, in the prominence of teeth in the upper jaw, the small recessive lower jaw, the short thumbs and short adducted great toes.

Extensive reviews of the literature have been made,—one of the most recent and complete being that of Rosenstirn<sup>1</sup> who, in 1918, abstracted all of the cases, some 120, which were known at the time. The disease is not known to be familial but is without doubt due to some congenital defect or tendency. This is indicated by the extremely early age at which the symptoms appear and by the occurrence of microdactylia which is almost always present. Upon the basis of this congenital predisposition, other factors and particularly injuries play a part. In many cases the onset of the disease has been immediately preceded by a heavy fall. In our patients comparatively minor accidents were followed by new bone formation.

The accepted name of the disease is probably a misnomer. There is little evidence that the condition is an infection or that the muscles are primarily involved. Since the careful study of Goto<sup>2</sup> most observers have agreed that the initial change is in connective tissue. The fascia, aponeuroses, tendons, periosteum and, under certain circumstances, the ligaments, may be involved. The pathological change is more than the deposition of calcium. Apparently it is a true metaplasia of connective tissue into bone. The process has been most carefully investigated. In the acute stage there is edema and extensive proliferation of young connective tissue which later becomes hard and fibrous; cells with a striking resemblance to cartilage cells without capsules are seen. Fibrous cartilage may appear. In this fibrous and cartilaginous tissue there appears sooner or later osteoblasts and bone cells which form tissue possessing a periosteum, haversian canals, and other microscopic characteristics of true bone and having the same chemical composition as the bones of the skeleton. Ossification has been shown histologically as early as two months after the first clinical appearance of the process.

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FEBRUARY, 1930

## EDITORIALS

### MISSOURI STATE SCHOOL INVITES MEDICAL MEETINGS

Last summer the Lafayette County Medical Society held one of its meetings at the Missouri State School for Feeble-minded and Epileptics at Marshall in conjunction with the Saline County Medical Society. At the meeting Dr. E. E. Brunner, the superintendent, conducted a clinic on "Clinical Types of Endocrine Dysfunctions in Mental Defectives." This meeting aroused in the physicians a very active interest in the peculiar problems facing the officers of the State School and a desire to encourage more liberal support of the institution so that greater benefits would accrue to the inmates.

On December 11, 1929, under the direction of Dr. Brunner, a musical program was rendered by the patients over radio station WOS, located at Jefferson City. The program consisted of solos, choruses and band selections. The band is made up of twenty-five patients, the chorus consisting of forty voices among the boys and girls. The program aroused considerable interest among the readers of our JOURNAL and many others who heard it and are interested in the training of the unfortunate boys and girls at the school. Dr. Brunner hopes to repeat the program occasionally but is handicapped by lack of money to pay the expenses. The broadcasting must be done over a telephone wire by remote control from Marshall to WOS at Jefferson City, the principal expense being for telephone toll. The broadcasting station makes a very nominal charge for its service and Captain Heiny, the announcer, is so deeply interested in the children at the institution that he is always willing to donate his service without cost.

These two activities—the meeting of the Lafayette County Medical Society at the institution and the broadcasting of the musical pro-

gram—have given the physicians and friends who heard the broadcasting and attended the meeting a new interest in the school which should not be allowed to die out. Dr. Brunner has suggested that any county societies in the neighborhood of Marshall who might want to hold a session at the school will be exceedingly welcome and plans will be made for the conduct of the meeting and entertainment of those who may attend.

### AERONAUTIC BRANCH OF THE DEPARTMENT OF COMMERCE

The rapid development of aeronautics has brought a new specialty into the medical field, that of aviation medicine. It has also caused the establishment of a special service in the Department of Commerce of the United States, the aeronautic branch. It is one of the duties of this branch of the Department of Commerce to supervise the medical examination of pilots and in the execution of this duty it organized a medical service for the physical examination of pilots and prospective pilots in the interests of safety. In establishing this medical service the Department of Commerce has designated that all applicants for federal pilot licenses, either for flying or for training as pilots, must pass physical examinations before physicians designated by the Secretary. They must likewise be reexamined periodically. These examinations cover a rather detailed examination of the eyes, a brief examination of the ears, nose and throat, equilibrium, a general physical examination, and a detailed examination of the nervous system. There are now about 750 medical examiners so designated throughout the country. All these examinations are reviewed in Washington where the applicant is finally certified as qualified or disqualified for the grade for which he has applied.

The selection of examining physicians by the Department is based on training as flight surgeons or its equivalent, or on group examinations by specialists. The Department requires that all examiners hold the degree of Doctor of Medicine, be licensed to practice medicine under the laws of their respective states, and be recognized as ethical practitioners in their respective localities.

At the Portland meeting of the American Medical Association last July, the House of Delegates adopted a resolution commending the Department of Commerce upon the high standards established in the selection of medical examiners for the aeronautic branch. The resolution follows:

*Resolved*, That the American Medical Association at its stated assembly in 1929 endorses the medical

work of the Department of Commerce, its methods of physical examination and its method of selection of medical examiners, and urges that the same high standards be continued and offers the support of the American Medical Association in furthering the specialty of aviation medicine.

### WEATHER HALTS SOCIETY MEETINGS

Old Man Winter played havoc with the regularity of society meetings during December and January, and if February maintains even its ordinary behavior more meetings will be called off or attendance greatly reduced. The bad weather conditions have not been confined to one or two isolated sections. The whole state has suffered from exceedingly heavy snowfall, subzero temperatures and, in some sections, floods have added to the discomfort of deep snows and extreme cold. The Postgraduate Committee had arranged to send speakers to several of the meetings which were postponed on account of the bad weather conditions.

In spite of these somewhat unusual handicaps, the spirit of fraternalism and the loyalty of members to the activities of county societies remain encouragingly high. Reports of the meetings are received with splendid regularity and the comments on the interest of members in the programs and other phases of society work carries assurance that our members are proud to have their county organizations vigorous, strong and forceful influences in their communities.

### REDUCING THE SMOKE MENACE AT ST. LOUIS

During the last two years a concentrated effort has been made in St. Louis to effect the eradication of the smoke menace. The Citizen's Smoke Abatement League has succeeded in diminishing the amount of soot fall to from 40 to 60 per cent since the League began its work in 1927.

Up to the present time work has been directed toward the larger users of smoke producing fuel. Now the League will direct its efforts in bringing the problem before all citizens of the city and county and the goal now set is for a city without smoke. An additional program to get the people to cooperate with the League in enforcing the smoke ordinance includes instruction in the proper methods of firing and reconstruction of antiquated heating plants in small homes.

The original object of the League which was

to obtain an adequate smoke law has been attained and the decrease in the amount of soot fall as shown by scientific tests has been the result. But with the smoke detriment to St. Louis cut only in half, the League has furthered its purpose. The campaign to reach all people with the intensive information will include publicity through many channels. Thus a drive, directed probably toward better business conditions but which will improve health conditions, is well under way.

### HEALTH CONDITIONS IN THE UNITED STATES

More deaths in 1928 than in 1927 are shown in a summary of health conditions in the United States submitted to Congress by Surgeon General H. S. Cumming, of the Public Health Service. The increase in deaths is from 11.4 per 1000 in 1927 to 12.1 per 1000 in 1928. Infant mortality increased from 64.6 per 1000 births in 1927 to 67.9 per 1000 in 1928.

The outbreak of influenza, which began in the spring of 1928, decreasing during the summer months and gaining epidemic proportions in the fall, was given in the report as responsible for the increase in the death rate. The epidemic was first reported on the Pacific Coast and spread eastward, reaching its peak for the country as a whole in the first of the year 1929. While many cases were so mild that physicians hesitated to report the illness as influenza, the general death rate rose far above normal during the epidemics, which did not continue for many weeks in any one place, the report points out.

Surveys conducted by the Public Health Service in various sections showed nearly 15 per cent of the population suffered attacks of influenza or grippe, 0.47 per cent gave a history of pneumonia, and 14 per cent reported colds which may or may not have been directly related to the epidemics.

The summary indicates that bubonic plague was reported in California and the Island of Hawaii during the fiscal year.

Cerebrospinal meningitis was reported more prevalent during 1928 than during any year since 1918. The disease has gradually increased during the last five years, according to the report.

The death rate from typhoid was given as 4.8 per 100,000, a decrease since the beginning of the century from 34 deaths per 100,000, or a reduction of 86 per cent. In 1928 the rate for tuberculosis was 77.5 deaths per 100,000 while in 1900 the rate was 200 per 100,000.



Pellagra showed an increase during 1928, the distribution in cases ranging from 50 per 100,000 in South Carolina to less than .1 per cent per 100,000 in several states.

Reports, some of them unofficial, raised the number of cases of undulant fever to 640, the summary showed. Reports on tularemia were given as incomplete but showing 480 cases with 8 deaths. One hundred forty-three cases of typhus fever were reported to the Public Health Service, the summary showed.

Smallpox was shown to have increased from 35,000 cases in 1927 to 38,000 in 1928.

### PSITTACOSIS

The wide publicity given by the lay press to the occurrence of cases of psittacosis and the fact that this disease occurs so rarely in our country prompts us to quote the editorial comment on the outbreak published in a recent issue of *The Journal of the American Medical Association*. We do this because the condition is more or less of a curiosity and because some of our members may have failed to read the interesting review of the disease contained in the editorial. The comment follows:

Last fall an outbreak of psittacosis was reported from Buenos Aires with two deaths. Other outbreaks have been reported recently in various parts of the United States and in other countries, varying from twenty eight cases with five deaths in Hamburg, Germany, to single cases in other cities. Six cases were reported in New York and Yonkers; several cases and one death at Toledo; three cases at Warren, Ohio, and one case at Freeport, Pa. Surgeon General Cumming has detailed Dr. Charles Armstrong, an epidemiologist of wide experience, to conduct a field investigation of the individual cases reported and to trace the source of the infection, which has been ascribed in practically every case to association with recently imported parrots. In the epidemic of psittacosis in Paris in 1892, which caused forty-nine cases and sixteen deaths, the parrots that carried the infection had been imported from South America. The disease is attributed to an organism called *Bacillus psittacosis* or *Bacillus aertrycke*, but there is doubt whether this organism is the real cause of the pneumonia transmitted to man by parrots. Some investigators, Jordan says, attribute it to a special variety of streptococcus. *Bacillus psittacosis* closely resembles *Bacillus paratyphosus*, *Bacillus suipestifer* and the bacillus of mouse typhoid (*B. typhi-murium*). The disease is essentially a medical curiosity and need occasion little alarm among people of the United States. Since the symptoms resemble those of other infectious disorders, identification of the disease rests on isolation of the specific organism from both the patient and the suspected parrot. The development of cases at widely separated points suggests anew the reflection that it is no longer possible for any person or any nation to live in isolation and that the possibility of unusual disorders must be ever present in the medical mind.

### NEWS NOTES

The University of California's cancer research fund was recently increased to \$200,000 by an anonymous gift of \$100,000. The money will be handled by the medical school and the Hooper Foundation for Medical Research.

On the evening of December 17, 1929, Dr. R. B. H. Gradwohl, St. Louis, delivered an address before the Medical Society of the County of Kings at Brooklyn, New York, on "The Schilling Differential Blood Work."

Dr. E. E. Glenn, assistant physician at the State Sanatorium at Mount Vernon, was appointed superintendent of the institution at a recent meeting of the State Eleemosynary Board. At the same meeting Dr. D. H. Young, physician at State Hospital No. 1, Fulton, was appointed superintendent of the hospital to succeed Dr. E. T. McGaugh who resigned.

Charged with the issuing of fraudulent medical licenses, Colonel W. H. H. Miller, former head of the Illinois State Department of Registration and Education, was fined \$2000 and sentenced to seven months and one day in jail by Judge Jacob Hopkins early in January. A new trial was denied but a sixty day stay to allow an appeal was granted. Several alleged conspirators will go to trial February 3.

Provision for a five year research into the cause and cure of trachoma has been established by a gift from the Commonwealth Fund, of New York, to Washington University, St. Louis. The gift will consist of a donation of \$50,000 annually for a period of five years, and longer if the need exists at the expiration of that period. Dr. Harvey J. Howard, professor of ophthalmology in the Washington University Medical School, will be director of the research work.

The exchange of house physicians between Barnes Hospital, St. Louis, and the East London Hospital for Children, London, England, has been arranged for 1930. This is the second year in which the exchange of house physicians between these institutions has been in operation. Dr. Findlay Ford, of Glasgow, Scotland, has arrived in St. Louis and assumed the position of assistant physician at Barnes Hospital. Dr. Austin J. Cordonnier, of Barnes Hospital, has departed for London to take up research work in the East London Hospital for Children.

The Trudeau Club of St. Louis will meet on Thursday, February 6, 1930, in the St. Louis Medical Society Building. The program will be as follows: "The Tonsil in Tuberculosis," by Dr. V. V. Wood. "The Relationship of Nasal Sinus Disease to Tuberculosis," by Dr. E. Lee Myers. "The Use of Galvanocautery in Laryngeal Tuberculosis," by Dr. James B. Costen.

Members of the 1930 foreign assemblies of the Inter-State Post Graduate Medical Association of North America will make their sixth annual visit to the clinics of Europe on May 14, 1930, as guests of the medical departments of the leading universities. Their itinerary includes Hamburg, Berlin, Prague, Munich, Oberammergau, Vienna, Venice, Rome, Naples, Florence, Milan, Interlaken, Lucerne, Zurich, Berne, Paris, Cherbourg. They will return to the United States July 10.

The Western Surgical Association held its annual meeting at Del Monte, California, December 12-14, 1929, under the presidency of Dr. E. Starr Judd, Rochester, Minnesota. The new officers of the association are: President, Dr. Carl E. Black, Jacksonville, Illinois; secretary, Dr. Frank R. Teachenor, Kansas City, reelected; treasurer, Dr. T. G. Orr, Kansas City, reelected; recorder, Dr. Harry P. Ritchie, St. Paul. The 1930 meeting will be held in Kansas City.

A physiological phenomenon has been discovered in the person of a young woman physiologist who breathes only three to five times a minute. A thorough search of the literature by Dr. Francis G. Benedict, of the Carnegie Institution's Nutrition Laboratory at Boston, and inquiry among physicians in some twenty states where he lectured failed to disclose any other instance of such slow breathing.

The corner-stone of the new million dollar County Hospital of St. Louis County was laid at Clayton, December 22. The building which will accommodate 100 beds is approximately one fourth completed and is scheduled to be ready for occupancy September 1. Those taking part in the ceremony were Mayor Eugene Ruth, University City, Reverend John F. Caskey, George H. Williams, former United States Senator, James M. Rohan, Dr. Edwin J. Schisler, vice president of the St. Louis Medical Society, Dr. R. B. Denny, Creve Coeur, Major T. J. Strickler, of Kansas City, Senator Richard F. Ralph, Valley Park, and Mayor Edward Storks, of Clayton.

Dr. Edmund V. Cowdry, St. Louis, professor of cytology at Washington University School of Medicine, has been asked by the British Government to make a study of parasites in East Africa. Dr. Cowdry has been given a leave of absence by Washington University in order to respond to this request.

The American Psychiatric Association and the American Association for the Study of the Feeble-minded will hold their 1930 annual meetings in conjunction with the First International Congress. It can safely be predicted that the conjoint meetings of these two Associations with the International Congress will bring together during Congress week, to greet their co-workers from other lands, the largest and most significant assemblage of American psychiatrists in the history of the mental hygiene movement. Both of the associations are participating in every phase of Congress activity. The programs of the Congress sessions and of the two associations are being worked out in close cooperation. Both of the associations are represented on the committee on program as well as on committees responsible for the organization of the Congress. The principal purposes of the Congress are:

1. To bring together from all countries, at this First International Congress, workers in mental hygiene and related fields for exchange of information and experience and for mutual consideration of individual and social problems growing out of nervous and mental disease, mental defect and mental and emotional maladjustments of the individual to his personal and social environment.
2. To consider ways and means of world cooperation and of more effective promotion of mental hygiene within the various countries.
3. To correlate the special knowledge and experience of psychiatrist, psychologist, psychiatric social worker, occupational therapist, public administrator, educator, sociologist and those of related professions, in determining how best to care for and treat the mentally sick, to prevent mental illness and to conserve mental health.
4. To arrive at common agreements concerning sound mental hygiene objectives for the organized movement.
5. To arouse greater world interest in mental hygiene, and secure greater acceptance of the idea that mental disease can, in large measure, be prevented, and that greatly increased governmental and philanthropic expenditures for mental health will find justification in lives saved for productive activity and will be good public policy.



Dr. Dallas B. Phenister, professor of surgery at the University of Chicago, delivered the ninth annual Hodgen Lecture at a joint meeting of the St. Louis Surgical Society and the St. Louis Medical Society in St. Louis, on January 14. The subject of the lecture was "The Etiology and Treatment of Some of the Circulatory Failures in Surgery."

Drs. H. H. Kramolowsky and W. T. Coughlin, of St. Louis, were the guests of the Marion County Medical Society at its meeting at Hannibal, Friday, December 10, 1929. Dr. Kramolowsky made an address on "The Surgery of the Urinary Tract," illustrated with lantern slides. Dr. Coughlin gave an illustrated lecture on his personal experience with the seriously sick goiter patient.

Under the direction of Dr. E. E. Brunner, superintendent of the Missouri State School for Feeble-minded and Epileptics at Marshall, a musical program was rendered by the patients over Radio Station WOS, located at Jefferson City, on the evening of December 11, 1929. The program consisted of solos, choruses and band selections. The band is made up of twenty-five patients, the chorus consisting of forty voices among the boys and girls.

A life size bust of Dr. E. H. Cary, Dallas, Texas, emeritus dean of Baylor University College of Medicine, Dallas, was presented to the college by the faculty, October 11, 1929. Dr. Cary was the first dean of the Medical College of Baylor University and professor of diseases of the ear, eye, nose and throat. It was largely through his efforts that the medical school has attained its present Grade "A" standing among teaching institutions. He was a member of the Board of Trustees of the American Medical Association from 1924 to 1929 and a delegate from Texas for many years. His numerous friends in Missouri will be glad to learn of this distinction conferred upon him by the faculty of the school that he has served so faithfully.

The official manual of Missouri for 1929-1930, popularly known as the Missouri Blue Book, has just been distributed by Secretary of State Becker. This book contains much information that is useful to physicians especially to the secretaries of county medical societies. There is a complete list of all departments with the personnel, the members of all boards, bureaus and commissions, the newspapers published in every county and much other data that often would be helpful to the officers of county

medical societies. The book is distributed free of all cost. Each state senator receives one hundred copies and each county representative in the legislature receives fifty copies for distribution in their respective districts. We suggest that the secretaries of the county societies request their senator or representative to give them a copy of the Blue Book.

The St. Louis Medical Society has completed its plan for the employment of an executive secretary and has engaged Mr. Elmer H. Bartelsmeyer, of St. Louis, to fill the position beginning February 1.

Mr. Bartelsmeyer is well fitted to assume this important office. For more than eight years he has been secretary to the St. Louis Board of Police Commissioners, and is a graduate in law being admitted to the bar at St. Louis in 1915. Besides his position with the police board he has held other secretarial positions that brought him in contact with large groups of people which developed his native abilities for the execution of the important duties these positions entailed.

The executive secretary plan in medical societies is new to St. Louis and to Missouri, but it has been adopted with conspicuous success by several large component societies in other states. The Cleveland (Ohio) Academy of Medicine, the Wayne County (Detroit) Medical Society and the Toledo (Ohio) Academy of Medicine inaugurated the system several years ago with such excellent results that the position has become a permanent fixture in these societies.

Mr. Bartelsmeyer's duties will consist chiefly in the important function of assisting the regularly elected officers to bring the organized medical profession of St. Louis into more intimate contact with the public and endeavor to establish a congenial understanding of the purposes of the medical society in its relation to the public, the lay organizations and the press, for the better protection and improvement of health conditions in St. Louis.

The following articles have been accepted for New and Nonofficial Remedies:

E. Billhuber, Inc.

Lenigallol-Zinc Ointment

Cutter Laboratory

Scarlet Fever Streptococcus Antitoxin—Cutter

Mead Johnson & Co.

Mead's Viosterol in Oil 100 D

H. K. Mulford Co.

Ampules Sodium Cacodylate—Mulford,  
¾ grain, 1 cc.

Ampules Sodium Cacodylate—Mulford, 3 grains, 1 cc.

Ampules Sodium Cacodylate—Mulford, 5 grains, 1 cc.

Winthrop Chemical Co., Inc.

Tablets Tutocain No. 6

The following article has been exempted and included with the List of Exempted Non-medicinal Articles (New and Nonofficial Remedies, 1929, p. 485):

Child Welfare Guild, Inc.

Bite-X

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## OBITUARY

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### ELBERT VICTOR KRING, M.D.

Dr. Elbert V. Kring, St. Louis, a graduate of Barnes Medical College, 1909, died December 1, 1929, aged 44.

Dr. Kring was born in St. Louis, March 3, 1885, where he received his education and practiced his profession until his death. He became a member of the St. Louis Medical Society in 1919. He served in the Medical Corps during the World War, being commissioned First Lieutenant, and was a member of the American Legion.

Surviving are his widow, Mrs. Harriet M. Kring, one son, Elbert V., Jr., and one brother. Funeral services were held December 3, with interment in Valhalla Cemetery.

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### THOMAS WALTER FOSTER, M.D.

Dr. Thomas W. Foster, Butler, a graduate of Marion-Sims College of Medicine (now St. Louis University School of Medicine) 1891, died December 9, 1929, of myocarditis and endocarditis, aged 62.

Dr. Foster was a member of the staff of the Butler Community Hospital, a member of the Bates County Medical Society for many years and was recently elected an Honor Member by that body. He represented his Society at the State Meeting in 1924. He held Fellowship in the American Medical Association.

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### CHARLES G. ROHLFING, M.D.

Dr. Charles G. Rohlfing, St. Louis, a graduate of Humboldt Medical College, St. Louis, 1867, died at his home October 14, 1929, of pneumonia, aged 85.

At the age of twenty-four, Dr. Rohlfing received his medical degree and started practice in St. Louis where he was actively engaged for sixty-two years. He was an active member of the St. Louis Medical Society for many years and was elected an Honor Member in

1921. He was also a Fellow of the American Medical Association.

Dr. Rohlfing is survived by two sons and two daughters. One son, Walter H., is chief physician at the St. Louis City Dispensary, an office that he has held since 1916. Funeral services were held on October 17 and burial was in Bellefontaine Cemetery.

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### JESSE JEROME BURDICK, M.D.

Dr. Jesse J. Burdick, St. Louis, a graduate of Washington University School of Medicine, 1908, died November 24, 1929, after a brief confinement to his home, of chronic embolism, aged 44. With his death the medical profession of St. Louis and the St. Louis Medical Society lost a valued younger member who had already achieved a marked success in his profession.

Dr. Burdick was born in Alton, Illinois, on June 1, 1885. His boyhood and youth were spent in his parents' home at Roodhouse, Illinois, where he graduated from the local high school in 1904. In the autumn of the same year he entered the Medical School of Washington University, and received his degree in 1908. He served internships at the St. Louis Female and City Hospitals, and was a resident physician at the St. Louis City Infirmary.

On entering private practice he established his office near the Water Tower on East Grand Avenue and remained in that locality during his entire career. In 1911 he became assistant in gynecology and obstetrics at the St. Louis Mullanphy Hospital and also private assistant to the late Dr. Frank A. Glasgow. He soon developed an aptitude and marked ability in pelvic and abdominal surgery, and when the medical staff at Mullanphy Hospital was increased in 1920 he was given equal rank with his former chief and an independent service. For a number of years he served on the visiting staff of St. Vincent's Hospital, and was a welcome visitor and did considerable work at the new St. Mary's Hospital.

In addition to his surgical work, Dr. Burdick had a large general practice. He was a hard worker who enjoyed his work. Recreation gave him a great deal of happiness and was spent generally in long automobile journeys. He was always unassuming and genial and was very popular with his colleagues and also with the laity. Besides being interested in organized medicine he was a member of the alumni association of his university, Phi Delta Fraternity, City Hospital Alumni, the Elks, and other organizations. He was also a Fellow of the American Medical Association.

From July, 1918, until March, 1919, Dr.



Burdick served as First Lieutenant and later as Captain in the Medical Corps of the United States Army during the war emergency, and was afterward an active and enthusiastic member of Boutwell Post, American Legion and the Society of Forty and Eight.

Dr. Burdick's failure in health became apparent only last August, and though he tried gallantly to carry on it was soon evident that his was a losing fight. He is survived by a devoted wife and two promising sons who are students in a local high school. A large circle of friends and loyal patients mourn sincerely the loss of a splendid friend and an able, kindly physician.

A. C. K. in the *Bulletin of  
St. Louis Medical Society.*

#### AUGUSTA A. HELLE, M.D.

In the passing of Dr. Augusta A. Helle, the St. Louis Medical Society has lost one of its devoted and enthusiastic associates. Its interests were her interests.

Dr. Helle was born in St. Louis, October 22, 1875. After several years training and employment in the trades, Augusta Helle decided to give her time to the healing of the human body. To accomplish this, she studied medicine at the evening classes conducted by the National University of Arts and Sciences, St. Louis, from which she received her M.D. degree in June, 1913. The degree of Bachelor of Science was conferred on her the following June. Not satisfied with the knowledge she received at college, she spent several years doing clinical work under Dr. Hild at the Holy Cross Dispensary. She began the practice of medicine in 1913.

To give her patients the best she could, several trips were made to Europe where, under the tutelage of some of Europe's eminent physicians, she learned the latest discoveries in the field of medicine and brought back to her patients the many advancements that Europe had made in the medical profession. She was contemplating another trip to the Orient when death called her to her eternal reward.

She loved her work as was evidenced during her last illness, when she would put aside her own pains and feelings to relieve the sufferings of a patient who, unaware of the doctor's condition, called at her office. She was most charitable in her dealings with mankind and was extremely good to the poor and needy.

"To know her was to love her" was surely true of her, as her devoted clientele never ceased remembering her during her lingering illness.

Early in July, at the Grant Hospital in Chicago, she underwent an operation from which she did not recover. She returned to St. Louis in August, but found it necessary to enter Barnes Hospital late in September. She died October 7, 1929.

Dr. Helle is survived by her mother, Mrs. Anna Helle, and her brothers, Peter P., Joseph, and William M. Helle.

E. P., in the *Bulletin of St.  
Louis Medical Society.*

#### JOHN MONOHAN DOYLE, M.D.

Dr. John M. Doyle, St. Joseph, a graduate of Ensworth Medical College, St. Joseph, 1897, died November 7, 1929, of osteogenic sarcoma of the right humerus with widespread metastases, aged 55.

Dr. Doyle was born in St. Joseph, January 29, 1874, the son of the late Dr. T. H. Doyle, a prominent physician of St. Joseph. He was educated at Christian Brothers College, St. Mary's College and Washington University. He was a member of the faculty of the old Ensworth Central Medical College. During the war he was instructor of surgery at the Chattanooga University. He was an active member of the Buchanan County Medical Society for many years and in June, 1929, was elected an Honor Member. He was also a Fellow of the American College of Surgeons. Besides being a popular physician, Dr. Doyle participated in the civic affairs of his community, at one time being coroner and county physician.

Dr. Doyle is survived by his wife, Mrs. Virginia Doyle, and one sister. His loss will be deeply felt in his community not only by his fellow physicians but by his many friends.

#### JOHN REZIN BOYD, M.D.

Dr. John R. Boyd, Springfield, a graduate of University of Louisville School of Medicine, 1886, died September 20, 1929, at the Springfield Hospital, aged 75.

Dr. Boyd was born in Logan County, Kentucky, and after graduating from the Auburn Academy of his native state pursued his medical studies in the University of Louisville, from which he graduated. After attending lectures for one year at the Bellevue Hospital Medical College, New York, he started practice at Butler, Missouri, where he remained until 1894, when, after spending a year in postgraduate study at the Chicago Polyclinic, he removed to Springfield where he practiced the remainder of his life. Soon after locating in Springfield he became secretary of the Greene County

Medical Society and gave ten consecutive years of honest and faithful service to this office, resulting in one of the most prosperous periods in the history of the Society.

Dr. Boyd in the late nineties became associated with the late Drs. N. F. Terry and C. E. Fulton, of Springfield, and was one of the promoters and founders of the Springfield Hospital, serving as chairman of the board of directors of that institution for a number of years. The present success of the hospital is largely due to the executive ability of Dr. Boyd and his faith in the enterprise, especially after the death of Dr. Terry.

In 1901 he was elected state medical director of the Modern Woodmen of America, an office that he held for many years. He was for a time head physician of that organization and would have continued as such had the duties of the office not necessitated the removal of his residence to Rock Island, Illinois, with the sacrifice of friendships and associations of a lifetime, which he declined to make. At the time of his death he had been an active member of the Southwest Missouri Medical Society continuously for thirty years. He was a member of the Presbyterian Church and was a thirty second degree Mason.

Dr. Boyd was married to Miss Nannie Montgomery, Lebanon, Kentucky, in 1883, who with a daughter, the wife of Dr. Robert Glynn, of Springfield, survives him.

COMMITTEE ON NECROLOGY, Southwest Missouri Medical Society.

#### ANDREW R. SNYDER, M.D.

Dr. Andrew R. Snyder, Joplin, a graduate of Bellevue Hospital Medical College, New York, 1885, died November 24, 1929, aged 70.

Dr. Snyder received his preliminary education at Albin Academy, Albin, New York, where he practiced for two years before coming to Joplin. He was a member of the Jasper County Medical Society for many years and a Fellow of the American Medical Association. When the reorganization of the State Medical Association was completed in 1903, Dr. Snyder was elected Councilor for the Fourteenth District then comprising the counties of Barry, Barton, Cedar, Dade, Jasper, Lawrence, Newton, Vernon. He was a faithful and efficient officer of the Association and worked industriously toward organizing county societies in the counties of his district.

The Jasper County Medical Society adopted the following resolution on the death of Dr. Snyder at the December 3 meeting:

The Jasper County Medical Society pauses to record upon its minutes the passing of a charter

member and past president, Dr. Andrew R. Snyder, who came to Joplin when it was in the making of a city and gave his services to this community, fresh from the best medical schools of Michigan and hospitals of New York. He was a pioneer and labored among the people of this mining district for forty years, working skilfully, without the aid of hospitals and nurses in a new field. Joplin owes him honorable mention as one who blazed the trail for the better and more modern facilities of today, therefore be it

*Resolved*, That this body of physicians extend to his faithful wife who stood by him in those years of labor, its deepest sympathy in her bereavement.

R. M. JAMES,  
R. L. NEFF,  
C. C. CUMMINGS,  
Committee.

## SOCIETY PROCEEDINGS

### COUNTY SOCIETY HONOR ROLL FOR 1930

(UNDER THIS HEAD WE LIST SOCIETIES WHICH  
HAVE PAID DUES FOR ALL THEIR MEMBERS)

#### HONOR ROLL

Madison County Medical Society, December 16, 1929.

Benton County Medical Society, January 8, 1930.

Pulaski County Medical Society, January 11, 1930.

### ADAIR COUNTY MEDICAL SOCIETY

The Adair County Medical Society met December 5, 1929, in the office of Dr. J. W. Martin, Kirksville, and elected the following officers for 1930: President, Dr. J. W. Martin, Kirksville; vice president, Dr. Spencer L. Freeman, Kirksville; secretary-treasurer, Dr. J. S. Gashwiler, Novinger; delegate, Dr. E. S. Smith, Kirksville; board of censors, Drs. R. R. Ellis, Ralph O. Stickler and Spencer L. Freeman, of Kirksville; committee on public policy, Drs. E. C. Grim, E. S. Smith and J. F. Dodson, of Kirksville.

J. S. GASHWILER, M.D., Secretary.

### AUDRAIN COUNTY MEDICAL SOCIETY

At the December meeting of the Audrain County Medical Society the following officers were elected for the year 1930: President, Dr. Fred Griffin, Mexico; vice president, Dr. J. G. Moore, Mexico; secretary-treasurer, Dr. H. C. Brashear, Mexico; delegate, Dr. R. W. Berrey, Mexico; alternate, Dr. William Ford, Mexico.

H. C. BRASHEAR, M.D., Secretary.

### BATES COUNTY MEDICAL SOCIETY

The regular meeting of the Bates County Medical Society was held at Butler, December 12, 1929. The following members were present: Drs. E. N. Chastain, R. E. Crabtree, J. S. Newlon and Geo. H.



Thiele, of Butler; Drs. C. J. Allen, W. H. Allen and G. A. Delamater, of Rich Hill; Dr. W. H. Allen, Jr., Hume; Dr. C. A. Lusk, Virginia; Dr. H. A. Rhodes, Foster; Drs. C. W. Luter and E. E. Robinson, of Adrian.

Dr. A. B. Freeman, of Rockville, who was to read a paper was unable to be present.

The chief object of this meeting which had been called a week earlier in the month, was to discuss a matter of great importance arising among our membership.

CARTER W. LUTER, M.D., Secretary.

#### BUCHANAN COUNTY MEDICAL SOCIETY

The Buchanan County Medical Society met at St. Joseph, Wednesday evening, December 4, 1929, and elected officers for 1930 as follows: President, Dr. E. M. Shores, St. Joseph; vice president, Dr. L. H. Fuson, St. Joseph; secretary, Dr. Winton T. Stacy, St. Joseph; treasurer, Dr. J. M. Bell, St. Joseph; censor for three years, Dr. Daniel Morton, St. Joseph; delegate, Dr. W. L. Kenney, St. Joseph; alternate, Dr. C. A. King-McGill, St. Joseph; member of auxiliary committee on public policy, Dr. W. C. Proud, St. Joseph; member of Board of Trustees, for four years, Dr. W. H. Minton, St. Joseph. Following the election of officers the routine business was disposed of.

T. L. HOWDEN, M.D., Secretary.

#### CARTER-SHANNON COUNTY MEDICAL SOCIETY

The Carter-Shannon County Medical Society met at Eminence, Tuesday afternoon, December 17, 1929, with the following members present: Dr. T. W. Cotton, Van Buren, President, Missouri State Medical Association; Dr. T. A. Baltz, Winona; Dr. W. J. Wheat, Fremont; Dr. Frank Hyde, Eminence; Dr. W. T. Eudy, Eminence.

Case reports were given by Drs. Frank Hyde and T. W. Cotton, after which the routine business was disposed of.

The next meeting will be held some time in February, the program and date to be arranged later.

W. T. EUDY, M.D., Secretary.

#### CLAY COUNTY MEDICAL SOCIETY

The Clay County Medical Society met in Liberty, December 5, 1929, and elected the following officers for 1930: President, Dr. E. C. Robichaux, Excelsior Springs; vice president, Dr. R. E. Sevier, Liberty; secretary-treasurer, Dr. J. J. Gaines, Excelsior Springs; delegate, Dr. Y. D. Craven, Excelsior Springs; alternate, Dr. J. H. Rothwell, Liberty; censor for 3 years, Dr. J. E. Baird, Excelsior Springs.

Dr. Spence Redman, Platte City, Councilor for our district, was present and made a few remarks, and the secretary, Dr. Gaines, also spoke on the activities of the Society.

J. J. GAINES, M.D., Secretary.

#### FIVE-COUNTY GROUP MEDICAL SOCIETY

The Five-County Group of Medical Societies met at the school building in Marston, Wednesday, December 4, 1929. Luncheon was served by the Methodist Ladies' Aid at six p. m. This group consists

of Butler, Dunklin, New Madrid, Pemiscot and Stoddard Counties.

The scientific program consisted of a Symposium on Pneumonia, with papers contributed by the following:

"Cause," by Dr. Edwin G. Cope, Hornersville.

"Diagnosis," by a Butler County physician.

"Treatment and Prognosis," by Dr. W. C. Dieckman, Dexter.

"Complications and Sequelae," by Dr. J. B. Luten, Caruthersville.

"Pneumonia and Public Health," by Dr. Wm. O'Bannon, New Madrid.

A general discussion on pneumonia was held and cases reported.

T. C. ALLEN, M.D., Secretary.

#### GRUNDY COUNTY MEDICAL SOCIETY

The Grundy County Medical Society held an interesting meeting at Trenton, January 7, 1930.

Dr. E. A. Duffy, Trenton, addressed the members on "Puerperal Sepsis." The discussion on this subject was opened by Dr. E. J. Mairs, Trenton.

"The Endocrines" was the subject of a paper read by Dr. J. F. Fair, Trenton. Dr. O. R. Rooks, Trenton, led the discussion on Dr. Fair's paper.

E. A. DUFFY, M.D., Secretary.

#### JASPER COUNTY MEDICAL SOCIETY

The Jasper County Medical Society held its regular monthly meeting, December 17, 1929, at 8 p. m. in the Joplin Y. M. C. A. rooms, with Dr. Roy E. Myers, Joplin, vice president, in the chair. There were twenty-six members and twelve visitors present. The minutes of the last meeting were read and approved.

A motion was made, seconded and carried, that the members' wives be invited to our banquet on January 7.

Dr. C. C. Cummings, Joplin, read a paper on "Tularemia" and presented a patient.

Dr. Russell L. Haden, Kansas City, gave a very thorough discourse on "Rheumatism." Dr. Haden's visit was much enjoyed.

H. L. WILBUR, M.D., Secretary.

#### Meeting of January 7, 1930

The Society held its annual installation and banquet in the Empire Ballroom, of the Hotel Connor, Joplin, January 7. A large number of members and visitors and their wives were present. Following the banquet a short program of entertainment was provided. The ladies then adjourned to an adjacent room to organize an Auxiliary, and the meeting of the Society began.

After the installation of the newly elected officers, the regular order of business was suspended and the balance of the evening was given over to the visiting essayists, who were sent to us by the Postgraduate Committee of the State Association.

Dr. James R. McVay, Kansas City, presented a paper on "Bilateral Renal Calculi."

Dr. G. Wilse Robinson, Sr., Kansas City, gave a talk on "The Borderland of Epilepsy."

Dr. G. Wilse Robinson, Jr., Kansas City, read a paper on "Pachyonian Epilepsy."

These papers provoked a lengthy discussion.

O. T. BLANKE, M.D., Secretary.

THE KANSAS CITY ACADEMY OF  
MEDICINE

Meeting of October 25, 1929

THE INTERNAL SECRETION OF THE  
OVARY.\*—By DR. EDWARD A. DOISY.

The first experimental evidence of ovarian influence on the genitals through internal secretion was furnished by autotransplantation experiments by Knauer and Halban near the end of the last century. During the next decade unsuccessful attempts at substitution therapy with ovarian extracts were made. Fraenkel demonstrated that the corpus luteum plays an important role during pregnancy. For the two decades following, investigations of the internal secretion of the ovary centered about the corpus luteum.

In 1912 Adler showed that an ovarian extract could induce a development of the uterus like that which occurs during heat. Extracts were also prepared which produced growth of the uterus and vagina in sexually immature animals. Two conditions were then noted, (1) the almost universally accepted working hypothesis that the corpus luteum is the producer of the genitalia growth-promoting hormone; (2) lack of a quantitative assay method for the control of chemical work in the preparation of extracts.

Dr. Leo Loeb demonstrated that the time between ovulations could be decreased by excising the fresh corpora lutea. Recent investigations have shown that the physiological tests employed for detection of the hormone produced by the corpus luteum were not satisfactory.

Stockard and others showed that stages of the oestrous cycle of the guinea pig, rat and mouse, respectively, determined the cell types found in the vagina. Time relations indicated that the corpus luteum could not produce the growth-stimulating hormone but that it is probably produced by the rapidly developing Graafian follicle. A properly prepared extract of the ovary should produce genital changes in a spayed rat typical of the oestrous cycle of the normal animal.

Experiments showed: (1) That the spayed rat responded to the injections of the hormone with normal oestrous cycle, with the exception of ovulation, i. e., with growth and cornification of the epithelial cells in the vagina, hyperplasia and hypertrophy of the uterus with distension of the lumen due to an increased secretion, growth in the mammary gland, and the induction of mating instincts. (2) That the spayed rat is an exceptionally good animal for the assay of the growth-promoting ovarian hormone. (3) That the liquor folliculi contains a higher concentration of the hormone than the residual ovarian tissue and that the corpus luteum (except human) contains very little or none.

The possible sources of the hormone were found to be ovary, placenta, and urine of pregnant women.

With the financial assistance given by the Council on Pharmacy and Chemistry of the American Medical Association,—the only aid that we have ever received,—we succeeded in purifying the hormone until 1 mg. contained more than 1000 R. U. At this point our work with ovaries was abandoned because 10 pounds of ovaries at \$2 per pound made only 1 mg. and we needed 10 gm. of the pure ma-

terial for chemical analysis which would cost \$200,000.

Dr. Allen had showed that injections of ovary-ectomized monkeys had produced bleeding and other signs of menstruation, which made it seem likely that our preparation would have therapeutic value.

Zondek and Aschheim, of Berlin, had followed up the earlier work of Frank and Loewe and discovered the enormous concentration of folliculin (one of the many names of this hormone) existing in the urine of pregnant women, so we undertook its isolation. The charity patients coming to the obstetrical dispensary department of St. Louis University School of Medicine were supplied with two-gallon bottles and required to collect their urines. In a very short time an abundant supply was obtained. Our program called for the extraction of such huge volumes of urine that it became necessary to consider factory scale apparatus. The capacity of this apparatus is 35 liters per 24 hours and its efficiency about 90 per cent. It has functioned so satisfactorily that we are now constructing two more which will enable us to extract about 100 liters of urine per 24 hours.

The butyl alcohol extract of urine is a deep, dark brown, whereas the final product is a beautiful white crystalline material. The rat unit of the first extract weighs about 0.04 mg., which means that 99 per cent of this weight must be removed to obtain the sought for pure hormone. By a complicated series of fractionations the final goal of a crystalline material, which considerably exceeds in potency any non-crystalline product hitherto obtained, has been attained. It is realized that the absolute proof that these crystals are the hormone can be furnished only by a determination of the chemical constitution followed by a synthesis of the compound.

The chronological order of isolation of the hormones and the relative concentration of each follows:

Order of Isolation	Ratio of Weight of Hormone to Weight of Tissue	Mg. Per Kilo of Fresh Tissue
1. Adrenalin, Takamine, 1901	1:1000	1000
2. Thyroxin, Kendall, 1914..	1:2000	500
3. Insulin, Abel, 1925.....	1:100,000	10
4. Folliculin in:		
Ovary, .....	1:10,000,000	0.1
Urine, 1929 .....	1:1,000,000	1.0

This shows the effect of concentration on the progress of chemical work; physiological progress is similarly influenced. Adrenalin and thyroxin had been intensively studied before the existence of insulin was proved.

Now that we have very potent preparations of folliculin we are in a position to make calculations of its remarkable activity. It seems probable that in the absence of the ovary we can assume that the female rat is free from the ovarian hormone. One rat unit weighs approximately 0.0004 mg.; most of our spayed rats weigh about 200 gms. Assuming uniform distribution in the tissues, the concentration necessary to produce the artificial oestrous is calculated to be 1 part in 500,000,000.

We have heard from many sources favorable reports following the clinical use of the hormone. In the infantile type, following a course of injections, the secondary sex characters have developed and menstruation occurred. Since the hormone promotes growth in the genitalia it would seem that it might be effective in certain types of amenorrhea. The clinical reports have been contradictory. If one considers the recent work of McClendon (1929) in which he reports the finding of 1500 R. U. per liter of blood in the intermenstrual period and the very

\* From the Department of Biological Chemistry, St. Louis University School of Medicine.



meager dosage (20 or 30 R. U. per day) usually administered in the treatment of amenorrhea, it is not surprising that greater success has not attended the use of this hormone. No doubt the cost factor has controlled to a large degree the dosage used, but with the relatively simple procedure for the extraction of the urine the price should suffer a pronounced diminution.

Meeting of November 22, 1929

# THE FILTERABLE VIRUSES.—By DR. T. M. RIVERS.

In 1668 Francesco Redi showed that insects do not arise spontaneously, and two centuries later Pasteur showed that organisms visible only by means of the microscope do not arise in such a manner. Next came another period in the development of knowledge concerning the origin and nature of a group of active agents even smaller than bacteria. In 1892 Iwanowski observed that the etiological agent of mosaic disease of tobacco plants passed through earthenware filters which were impervious to bacteria. This was confirmed by Beijerinck who, unable to see anything in the infectious filtrates by means of the microscope, stated that the cause of tobacco mosaic must be a living, contagious fluid. Loeffler and Frosch showed that the agent responsible for foot and mouth disease in cattle is capable of traversing bacteria tight filters and is invisible under the microscope; and then, in rapid succession, many disease producing agents were found to be filterable and invisible.

From 1898 until 1915, with but few exceptions, investigators considered the filterable viruses to be small living organisms. Some claimed that they could see and cultivate them on simple artificial media, but these claims have not been substantiated. Then came the work of Twort and d'Herelle on the transmissible lysis of bacteria, or bacteriophagy. Twort described the agent as belonging "somewhere in the vast field of life more lowly organized than the bacterium or ameba," and suggested that "it may be living protoplasm that forms no definite individuals, or an enzyme with power of growth," or, finally, a material arising spontaneously in normal bacteria. D'Herelle believes that the bacteriophage is a small, living, autonomous agent. He says that it is visible, but others contend that he saw only the particles of degraded bacteria on which the active agent was adsorbed. In any event, the bacteriophage is exceedingly small, probably not more than 5 to 20  $\mu$  in diameter, and not measurable optically.

Has the bacteriophage a metabolism of its own? According to d'Herelle, it has powers of assimilation, but most workers agree that no evidence of respiration or of other metabolic activities has been definitely proven for this peculiar agent. All agree, however, that it possesses a remarkable power of multiplication in the presence of susceptible bacteria. Is it alive? Some contend that it is an inanimate agent while others believe it to be a living autonomous organism.

Rous showed that some sarcomas of fowls are transmissible indefinitely in series by an agent separable from the tumor cells. This led to discussions as perplexing as those described in connection with bacteriophage. Rous is prepared to entertain the idea that the virus causing these sarcomas is animate, and Gye contends that he is able to cultivate it in artificial media and that it is visible by means of the ultramicroscope. Murphy thinks that the agent is an enzyme-like material. Carrel and

Fischer are of the opinion that it is an inanimate substance derived from injured cells capable of regenerating itself indefinitely through its successive action upon normal cells.

From what has been said regarding filterable viruses, it is now evident why spontaneous generation was considered earlier. Slowly, scientists have been descending the scale of life as regards size and at each step have settled to their satisfaction the question of spontaneous generation. Now they are face to face with the "infinitely small in biology." Although no investigator working in the virus field has claimed to have generated living organisms from inanimate matter, a few have stated that they have induced inanimate substances to take on some of the attributes of life as, for example, specific activities and the power of multiplication. The nature of the filterable viruses is still an open question. If there be a sharp demarcation between life and death, then scientists, investigating the nature of filterable viruses, are in the vicinity of the line that separates infinitely small animate organisms from inanimate active agents.

However, there is no doubt about what these agents can do nor about the importance of their activities. Indeed, if it were not for pathological changes produced by viruses in some host, their existence would at present be unknown. All visible forms of plant and animal life are attacked by these agents and the following are a few of the diseases resulting from their activities: bacteriophagy; mosaic diseases of plants of which there are at least ninety; polyhedral diseases of caterpillars including the silkworm; lymphocystic disease of fish, fowl-pox or "sorehead" of chickens, fowl plague, infectious myxomatosis of rabbits, distemper of dogs, rabies, cattle plague, hog cholera, Borna disease or meningo-encephalitis of horses, cowpox, smallpox, chickenpox, fever blisters, measles, yellow fever, and poliomyelitis.

Certain outstanding facts are worthy of notice. The incitants of virus diseases are spoken of as filterable viruses because they traverse various kinds of filters that do not permit the passage of ordinary bacteria. No one has definitely shown that the etiological agents of virus maladies are visible by means of the best microscopes. The conception that viruses either constitute filterable forms of ordinary bacteria or represent a small form in the life cycle of bacteria is untenable. In spite of many reports to the contrary, none of the viruses have been cultivated *in vitro* in the absence of living susceptible host cells. They appear to be obligate parasites, exhibiting a type of parasitism which at times is highly specific, that is, many are capable of multiplying and producing lesions in only one species of host. The effects of the activity of viruses on cells are frequently evidenced by the appearance of inclusion bodies either in the nucleus or in the cytoplasm. These are not found in ordinary bacterial diseases nor have they been described in all virus diseases.

In spite of obvious difficulties associated with all virus work, certain facilities and methods either are at hand already or are being rapidly developed for the purification, concentration and preservation of viruses, for investigations concerning their relation to susceptible and nonsusceptible cells, and for studies relating to basic immune phenomena.

The virus field offers alluring problems to investigators interested either in the nature of life or in the phenomena associated with infectious diseases. The nature of the viruses may evade solution for a long time, but this should not induce undue pes-

sismism, because as knowledge increases concerning the activities and mode of spread of the viruses, methods of prevention will become more effective. This fact is exemplified by the work dealing with canine distemper recently completed in England by Dunkin and Laidlaw and by the discoveries of Stokes and his co-workers concerning yellow fever in West Africa.

## DISCUSSION

DR. FRANK NEFF: There is at the General Hospital in Kansas City a child three years of age who was given diphtheria antitoxin at noon one day and by eight o'clock that evening, without warning, went into a convulsive state followed in an hour by circulatory and respiratory collapse. She was resuscitated by the use of forced oxygen and carbon dioxide administration. We thought at the time that the manifestation was due to anaphylaxis. She has continued to stay in a convulsive state, unconscious, for three weeks. Knowing that Dr. Rivers was interested in the subject of postvaccinal encephalitis, I related this case history to him. He thinks that the child has epidemic encephalitis not connected with the dose of horse serum. The sudden onset of the encephalitis, the coincidence of exposure to diphtheria and the injection of antitoxin the same day is remarkable.

Not wishing to raise a controversial point but simply because there are honest doubters who believe that the etiology of scarlet fever is not entirely settled, I would like to ask Dr. Rivers to give us his opinion as to the possibility of scarlet fever being caused by a filterable virus as was once considered.

DR. W. A. MYERS: Clinicians are liable to be bewildered by recent advances in the study of filterable viruses. Their very size, expressed in terms of millimicrons instead of microns, is disconcerting. They are also liable to be bewildered by the controversy between well trained laboratory workers in accredited institutions. Differences of opinion as to the causes of poliomyelitis, encephalitis and herpes may be cited as examples. When the masters disagree radically, what shall we do?

Another field of study has been created by researches in ultramicroscopical causes of disease, namely, that of intracellular pathology in the form of inclusion bodies as opposed to cellular pathology of our own and past generations of students.

Of prime interest to clinicians is anything relating to therapy. Bacteriophage, through the enthusiasm of its discoverers, has given promise of service in treatment. Our use of this agent has been quite too limited in the management of cystitis to draw final deductions. It would seem, however, that the same phage may be used in a nonspecific sense in treatment of cystitis of different bacteriologic findings. There has been noted at times definite reduction of bacteria and increase in the pus cells of the urine, a subsequent fall in the pus cells occurring.

DR. S. D. HENRY: Isn't there some doubt about the spirochete being the cause of syphilis? May it not be a filterable virus?

DR. F. C. HELWIG: Is Virus III encephalitis the same as "spontaneous rabbit encephalitis" or was the virus obtained from human beings? We found cytoplasmic inclusion bodies in a case of human encephalitis that resembled the Da Fano "minute herpetic bodies" or Negri bodies. Was Fischer's work with the Rous sarcoma confirmed by others? Some chicks sent to me have developed tumors com-

parable in many respects to the Rous sarcoma. Has any other chick sarcoma been isolated?

DR. H. R. WAHL: There are two points that especially impressed me. First our attention was called to the fact that our methods of investigation of the causes of disease in the past have been limited, since we have used only the test tube. Dr. Rivers has shown that the use of living tissues in cultivating organisms opens an entirely new field for the etiological study of diseases. Secondly, he has given us new light on the nature of intracellular inclusion bodies.

DR. RALPH H. MAJOR: I should like to ask about the etiology of the common cold. Is it due to a filterable virus? Also, is chicken leukemia a disease due to a filterable virus?

DR. RIVERS, closing: Some investigators still believe that a filterable virus is responsible for scarlet fever and that streptococci only accompany it. The evidence at present, however, is in favor of the conception that hemolytic streptococci constitute the etiological agent. Relative to Dr. Myer's statement concerning the difference of opinions existing in regard to the cause of poliomyelitis,—it is true that Dr. Flexner and Dr. Rosenow disagree as to whether streptococci or a virus is the cause. I believe that a virus is the inciting agent.

No one has definitely shown that the spirochete cultivated by Noguchi is the cause of syphilis. This is due to the fact that cultures of the organisms are not pathogenic. Syphilis can be transferred from host to host, and I believe that a spirochete is the cause of the disease. Nevertheless, it remains to be shown that it is possible to cultivate these disease-producing spirochetes on artificial media.

At present, many investigators consider that a filterable virus is the cause of common colds. The question is still unsettled. Chicken leukemia is probably caused by a virus.

In answer to Dr. Helwig's questions, the inclusion bodies of rabies are situated in the cytoplasm while those of Virus III and herpetic infections are found in the nuclei. Virus III encephalitis, although a spontaneous infection in rabbits, is caused by a filterable virus, while "spontaneous rabbit encephalitis" is caused by a visible protozoan parasite, *Encephalitozoon cuniculi*, masses of which frequently fill the cytoplasm of brain cells.

Fischer's work regarding the creation in tissue cultures of a virus capable of producing transmissible malignant tumors in chickens has not been confirmed. Dr. Carrel attempted similar experiments but obtained only negative results. A number of malignant sarcomas have been described in chickens, some of which resemble the Rous sarcoma No. 1.

MONTGOMERY COUNTY MEDICAL  
SOCIETY

The Montgomery County Medical Society held its first meeting since 1926 on October 17, 1929. The following officers were elected for the year 1930: President, Dr. David Nowlin, Montgomery City; vice president, Dr. E. W. Tinsley, Montgomery City; secretary-treasurer, Dr. Buell F. Menefee, Montgomery City; delegate, Dr. O. R. Rauschelbach, Rhineland; alternate, Dr. Douglas Wyatt, New Florence.

Two new members were added to the membership roll, namely, Drs. Douglas Wyatt, New Florence, and H. R. Minnick, Bellflower.

BUELL F. MENELEE, M.D., Secretary.



**NODAWAY COUNTY MEDICAL SOCIETY**

The Nodaway County Medical Society held its December meeting Friday, the 13th, in the offices of the County Health Bureau at Maryville. The meeting was called to order by the acting president, Dr. Leslie E. Dean, of Maryville, at 7:30 p. m. The following members were present: Drs. C. T. Bell, L. E. Dean, C. P. Fryer, C. V. Martin, R. C. Person, F. M. Ryan, and Wm. Wallis, Jr., of Maryville; Dr. W. M. Hindman, Burlington Junction; Dr. J. A. Phipps, Elmo; Dr. C. W. Kirk, Hopkins; Dr. C. J. Garding, Conception Junction; Dr. Chas. D. Humberd, Barnard. Dr. Jesse D. Cook, Kansas City, and Dr. Jesse Miller and George R. Seikel, of the faculty of Northwest Missouri State Teachers College, Maryville, were present as guests. The minutes of the regular meeting of November 8 were read and approved.

The application of Dr. Jack Rowlett, of Maryville, for membership in the Society was read by the secretary, and the president appointed Drs. C. W. Kirk, R. C. Person and F. M. Ryan as the committee of investigation.

The secretary read the following resolutions on the death of Dr. Frank C. Wallis:

WHEREAS, It has pleased an all wise Providence to call from our midst one of our best beloved members, Dr. Frank C. Wallis, we, the members of the Nodaway County Medical Society do hereby express our most sincere regrets, and we recommend that the following resolutions be spread upon the minutes of our books:

First, that the Nodaway County Medical Society has, in the death of our dear brother and co-worker, lost a most able and valuable member of the medical fraternity.

Second, that this Society shall mourn his loss because he was indeed a benefactor, not only to every member of our Society, but to the entire community, to the services of which his life has for so long been dedicated.

Third, that this Society shall ever hold in memory the life and spirit of our noble brother as an example worthy always of our emulation.

(Signed) CHAS. T. BELL, Chairman,  
R. C. PERSON,  
CHAS. V. MARTIN,  
Committee.

Dr. F. M. Ryan, Maryville, moved the adoption of these resolutions. The motion was seconded by Dr. C. P. Fryer, Maryville, and carried.

Dr. C. T. Bell, Maryville, moved that the Society's By-Laws be strictly adhered to in regard to dropping members from the rolls on account of non-payment of dues. The motion was seconded by Dr. F. M. Wallis, Jr., Maryville, and carried.

The meeting then proceeded to the election of officers for 1930. Dr. C. V. Martin moved that the officers now serving be reelected, adding that Dr. L. E. Dean, Maryville, be regularly installed as president, since he has served as acting president for the past year. Dr. C. T. Bell seconded the motion, which carried.

Dr. C. P. Fryer nominated Dr. C. W. Kirk, Hopkins, for the office of vice president.

Dr. C. V. Martin moved that the nominations close and that these officers be elected by acclamation, and that the secretary cast the ballots for the Society. The motion was seconded by Dr. F. M. Ryan and carried.

The secretary, Dr. C. D. Humberd, Barnard, then cast the Society's ballot in accordance with the nominations and motions.

Dr. Jesse D. Cook, Kansas City, by courtesy of the Postgraduate Committee of the State Association, gave an exceptionally good didactic lecture on "The Anatomy of the Larynx and the Nasal Sinuses." Dr. Cook, professor in the department of

anatomy of the Kansas City Western Dental College, simply "taught" his regular "class" of undergraduates for two hours and found no trouble in making every member present like it! He illustrated his lecture with blackboard sketches, lantern slides, and gross dissections of portions of several cadavers. Even the old rubber apron and the never-to-be-forgotten smell were with us, as Dr. Fryer's conference room became for a little while the old anatomy room of other days.

There were many comments on the striking value of Dr. Cook's talk, and the Society expressed its appreciation of his review by extending a unanimous vote of thanks.

CHAS. D. HUMBERD, M.D., Secretary.

**PEMISCOT COUNTY MEDICAL SOCIETY**

The Pemiscot County Medical Society met in the Armory at Caruthersville, December 31, 1929, in regular session with Dr. J. W. Rhodes, Hayti, in the chair. The following members were present: Drs. L. E. Cooper, Coutre; Dr. J. W. Johnson, Hayti; Drs. J. R. Pinion, M. H. Hudgings and J. B. Luten, Caruthersville; Dr. A. J. Speer, Deering; Dr. W. R. Limbaugh, Hayti. The minutes of the last meeting were read and approved.

Dr. Fred L. Ogilvie, Caruthersville, medical officer of the County Health Unit, applied for membership by transfer from the Scott County Medical Society. On motion, duly seconded and carried, Dr. Ogilvie was elected a member.

The following officers were elected for 1930: President, Dr. J. B. Luten, Caruthersville; vice president, Dr. J. W. Johnson, Hayti; secretary-treasurer, Dr. W. R. Limbaugh, Hayti; delegate, Dr. J. B. Luten, Caruthersville.

W. R. LIMBAUGH, M.D., Secretary.

**ST. CHARLES COUNTY MEDICAL SOCIETY**

The following have been elected officers of the St. Charles County Medical Society for 1930: President, Dr. V. A. Schneider, St. Charles; vice president, Dr. B. L. Neubeiser, St. Charles; secretary-treasurer, Dr. L. E. Belding, St. Charles; delegate, Dr. A. P. Erich Schulz, St. Charles; alternate, Dr. B. G. Gossow, St. Charles; censors, Drs. A. P. Erich Schulz, St. Charles (term expires, 1931); B. G. Gossow, St. Charles (term expires, 1932); and J. M. Jenkins, St. Charles (term expires, 1933).  
L. E. BELDING, Secretary.

**STE. GENEVIEVE COUNTY MEDICAL SOCIETY**

The Ste. Genevieve County Medical Society held its annual meeting December 11, 1929, with President J. A. Wilkins, St. Marys, in the chair. All the members were present. The minutes of the last meeting were read and approved.

After the routine business was disposed of, the election of officers for 1930 was held and the following were elected: President, Dr. G. M. Rutledge, Ste. Genevieve; vice president, Dr. J. A. Wilkins, St. Marys; secretary-treasurer, Dr. R. W. Lanning, Ste. Genevieve; delegate, Dr. C. J. Clapsaddle, Ste. Genevieve; alternate, Dr. A. E. Sexauer, Ste. Genevieve.

Dr. R. C. Lanning, Ste. Genevieve, was elected to serve on the board of censors for three years.

The treasurer read his report which was accepted.

R. W. LANNING, M.D., Secretary.

## ST. LOUIS COUNTY MEDICAL SOCIETY

The regular meeting of the St. Louis County Medical Society was held at the First Congregational Church of Webster Groves, Wednesday, January 8, 1930, at 3 p. m. Dr. R. B. Denny, Creve Coeur, president, called the meeting to order. The following members were present: Drs. H. N. Corley, C. C. Irick, W. F. O'Malley and A. W. Westrup, of Webster Groves; Dr. F. P. Knabb, Valley Park; Drs. E. E. Breckenridge, P. N. Davis and E. E. Tremain, of Maplewood; Drs. Lee Dorsett, C. P. Dyer, Garnett Jones, of St. Louis; F. C. E. Kuhlmann, Webster Groves; Dr. J. H. Sutter, University City; Dr. O. L. Seabaugh, Kirkwood; Drs. O. W. Koch and J. D. Stoelzle, of Clayton; Dr. W. H. Townsend, Maplewood; Dr. F. J. Peterson, Richmond Heights; Dr. R. B. Denny, Creve Coeur. The minutes of the previous meeting were read and approved.

The membership committee reported favorably on Drs. H. M. Denny and C. H. Denny. On motion of Dr. A. W. Westrup, Webster Groves, seconded by Dr. Garnett Jones, St. Louis, and carried, the application of Dr. Leslie was held over until the next meeting and a committee was appointed by Dr. R. B. Denny to call on Dr. Leslie. Drs. A. W. Westrup, C. P. Dyer and P. N. Davis were appointed on this committee.

Dr. C. P. Dyer, St. Louis, moved that Dr. Otto J. Wilhelmi, St. Louis, be voted a corresponding member. The motion was seconded by Dr. W. F. O'Malley, Webster Groves, and carried.

The secretary-treasurer, Dr. E. E. Tremain, Maplewood, read his report for 1929, which was accepted.

Dr. W. H. Townsend, Maplewood, moved that the Society settle its account with the First Congregational Church of Webster Groves and thank them for the favors extended the Society, and that the next meeting be held at the office of Dr. W. F. O'Malley, Webster Groves. The motion was seconded by Dr. H. N. Corley, Webster Groves, and carried.

The following committees were appointed by the president, Dr. R. B. Denny, Creve Coeur, to serve for the year 1930:

Program: Drs. A. W. Westrup, C. P. Dyer and E. E. Tremain.

Legislation and Public Health: Drs. J. H. Armstrong, W. F. O'Malley and F. P. Knabb.

Entertainment: Drs. O. W. Koch, C. C. Irick and J. A. Sterling.

Membership: Drs. P. M. Brossard, J. H. Sutter and E. E. Breckenridge.

Necrology: Drs. Garnett Jones, H. N. Corley and E. L. Fredericks.

Dr. Lee Dorsett, St. Louis, gave a very instructive talk on "The Treatment of Eclampsia" which was greatly appreciated by all. Discussions followed by Drs. A. W. Westrup, C. P. Dyer, F. P. Knabb and E. E. Breckenridge.

A rising vote of thanks was given Dr. Dorsett.

E. E. TREMAIN, M.D., Secretary.

## WRIGHT-DOUGLAS COUNTY MEDICAL SOCIETY

The Wright-Douglas County Medical Society met in the office of the president, Dr. L. T. Van Noy, Norwood, Thursday afternoon, December 12, 1929, with the following members and visitors present: Drs. L. T. Van Noy and J. B. Little, of Norwood; Dr. J. A. Fuson, Mansfield; Drs. R. M. Norman and J. D. Ferguson, of Ava; Drs. A. C. Ames and R. A. Ryan, of Mountain Grove; Dr. U. J. Busiek,

A. W. Gifford and F. T. H'Doubler, of Springfield. The meeting was called to order at 2:30 p. m. by the president, Dr. Van Noy, and the minutes of the last meeting were read and approved.

The applications of Dr. J. L. Gentry and his son, Dr. M. C. Gentry, of Ava, for membership were read and referred to the board of censors, and upon their recommendation Drs. Gentry were elected to membership.

The election of officers for 1930 was held and the following were elected by acclamation: President, Dr. J. D. Ferguson, Ava; vice president, Dr. M. C. Gentry, Ava; secretary-treasurer, Dr. A. C. Ames, Mountain Grove; censor for three years, Dr. L. T. Van Noy, Norwood; delegate, Dr. R. M. Norman, Ava; alternate, Dr. E. C. Wittwer, Mountain Grove. The censors holding over are, Dr. J. A. Fuson, Mansfield (term expires, 1931), and Dr. F. B. Dailey, Mountain Grove (term expires, 1932).

Dr. U. J. Busiek, Springfield, discussed the subject of "Diphtheria; Its Diagnosis, Treatment and Prevention," mentioning the points of difference between diphtheria and other sore throats.

Dr. F. T. H'Doubler, Springfield, talked on thyroid conditions, the function of the thyroid gland, the causes and kinds of goiter, diagnosis and treatment. He spoke of the difference between hyperthyroid and hypothyroid conditions, and presented the subject in such a logical manner as to very much clarify it in the minds of his hearers.

Dr. A. W. Gifford, Springfield, spoke on "Nose, Middle Ear and Sinus Troubles Resulting from Common Colds" and brought out many instructive points in regard to these common and much neglected conditions.

A vote of thanks was given the visitors for their excellent papers and they were invited to come again.

Thanks to the wife of our president, for the delicious punch served was overlooked as a formal action, but it was undoubtedly felt at heart by every one present.

The meeting adjourned at 5:30 to meet again at the call of the secretary.

A. C. AMES, M.D., Secretary.

## WOMAN'S AUXILIARY

### OFFICERS 1929-30

President, Mrs. M. P. Ravenel, Columbia.

President-Elect, Mrs. A. W. McAlester, Kansas City.

1st Vice President, Mrs. U. J. Busiek, Springfield.

2nd Vice President, Mrs. James F. Owens, St. Joseph.

3rd Vice President, Mrs. H. C. Brashear, Mexico.

4th Vice President, Mrs. L. G. McCutchen, St. Louis.

Corresponding Secretary, Mrs. C. M. Sneed, Columbia.

Recording Secretary, Mrs. David S. Long, Harrisonville.

Treasurer, Mrs. R. C. Haynes, Marshall.

Auditor, Mrs. C. T. Ryland, Lexington.

Directors (2 years): Mrs. W. W. Ford, Gordonville; Mrs. Harry F. Parker, Warrensburg; Mrs. F. H. Spencer, St. Joseph; Mrs. C. C. Cummings, Joplin; Mrs. Raymond Spivy, St. Louis. (1 year): Mrs. T. S. Fleming, Moberly; Mrs. S. F. Freeman, Springfield; Mrs. Robert McE. Schaffler, Kansas City; Mrs. Hudson Talbott, St. Louis; Mrs. J. J. Gaines, Excelsior Springs.



## MISCELLANY

## PASSING OF A PATRIARCH

In this age of materialism when a snecr or a jest is often cast at the things that are really fine, when so many individuals court death, and value life and the living of it of so little moment, when the plaudits of the multitude seem to be centered so often on those who have attained monetary success or conquered the material forces of the world, it might be well to pause occasionally to pay tribute to the men who have given themselves unselfishly to their communities and people to the extent that their examples have left an indelible imprint on the character and lives of those among whom they lived and labored.

A small newspaper paragraph recently announced the death of Dr. Woodford Martin, of Savannah, Mo., who died at the age of eighty-nine. A volume had better expressed the life, character and philosophy of this patriarch. Tall in stature, massive and powerful in physique, handsome and ruddy in countenance, every line of which showed character, dignified and courtly in his bearing, kind but firm to the point of gruffness, he rendered a service and preached a practical, common sense philosophy of living and thinking that would have done honor to the preachments of Tom Browne in his "Religio Medici" or of "David Harum."

The greatness of his heart and the breadth of his understanding of the people who constitute the agricultural class of northwest Missouri was attested each of the past thirty years by an annual birthday dinner given at his home by his friends and admirers. The serving of this birthday feast commenced at 11 o'clock in the morning and usually lasted until 4 o'clock in the afternoon, and I have counted as many as 225 people present. He knew and loved human nature and his people, and those who appreciated real values trusted and revered him.

Up to a year ago he was hale, vigorous and healthy, but the death of his lovely old helpmate seemed to strike him a blow from which he never rallied. He was like a lost child without a mother. She took wonderful care of him, even trimmed his beard, cut his hair and manicured his nails. I understand that after her death, one of the Savannah barbers begged for the privilege of performing the same service without compensation, and would even call him up and remind him that he needed his services when the old gentleman would become a little forgetful of his personal needs.

In the few times I have fought the mud, the rain and the snow of the country roads when called by him in consultation, he would often say, "Doctuh (he was a Kentuckian by birth, and though long separated from the South, still slurred his r's) I'm mighty sorry to have called yuh in such weathuh, but I fetched an extra robe fuh yuh. Pull it up around yuh." Sorry to have called me occasionally in such weather! Thoughtful of the comfort of others when he had bucked the wind, the sleet, the mud and the rain for sixty-five years!

Shortly after my commencing the practice of medicine my own father passed on. Doctor Martin was the first to call on me after my great loss. "Cal," (he always called me Cal or Doctuh) he said, "you're pa's gone. I thought a heap of your pa; associated with him for thirty-five year and he nevuh told me a lie. Out of respect fuh him, I'm goin to patronize yuh until yuh tell me a lie. Then

I'm goin' to quit yuh." If I ever had a second father, it was this grand old man of the medical profession. I have often driven to his home after supper, winter or summer, sat on his front porch or at his fireside and basked not only in the warmth of his hospitality, but in the warmth of a philosophy that always radiated faith, hope and charity. His devoted clientele will attest the first two, his uncollected and uncharged accounts, his charity.

Ian McClaren's "Country Doctor of Scotland" and Doctor Martin are now perhaps clasping hands in the great beyond, comparing notes and probably receiving the just tributes from many, whose written obituaries were more flowery and less sincere at the time of their passing. What was said after the death of another great man of medicine can be truly said of him:

And is he dead whose glorious mind  
Lifts thine on high?  
To live in lives we leave behind,  
Is not to die.

—CARYL POTTER, M.D., in the  
*St. Joseph News Press.*

## VICTOR CLARENCE VAUGHAN

The death of Victor Clarence Vaughan on November 21, 1929, has deprived American medicine and public health of a great leader. He was born on October 27, 1851, at Mount Airy, Missouri. From 1874 until his retirement in 1921 he was connected with the University of Michigan, first as student, then as teacher and dean, during which long period he achieved for himself a rare reputation as a teacher, scientist and epidemiologist.

Dr. Vaughan went to the University of Michigan in 1874, after having taught Latin for two years at Mount Pleasant College, Missouri, where he graduated in 1872. At Michigan he received four degrees: M.S. in 1875; Ph.D. in 1876; M.D. in 1878, and the honorary degree of LL.D. in 1900. Later, other institutions honored themselves by conferring upon him the honorary degrees of LL.D., Sc.D. and M.D.

Dr. Vaughan was president of the Association of American Physicians in 1908 and of the American Medical Association in 1914. He was a member of the National Academy of Sciences, the American Philosophical Society, the French and Hungarian Societies of Hygiene. He also served as member of the House of Delegates of the American Medical Association in 1902, 1903, 1904 and 1906, and of the Council on Medical Education from 1904 to 1913. He was chairman of the section on pathology and physiology in 1902, of the reference committee on medical education in 1904 and of the Council on Health and Public Instruction from 1919 to 1923.

Dr. Vaughan began his teaching connection with the University of Michigan in 1875, as assistant in the chemical laboratory. In 1879 he became lecturer and in 1880 assistant professor of medical chemistry, and in 1883 he was advanced to the professorship. In 1887 he became professor of hygiene and physiological chemistry and director of the newly established hygienic laboratory. To these duties he added, in 1891, that of dean of the medical school. He held this chair and the deanship until 1921 when he retired as emeritus professor.

Retirement from the university did not close his activities. For several years, as chairman of the Medical Division of the National Research Council, he resided in Washington. It was there he wrote his splendid work, in two volumes, on "Epidemiology and Public Health," and in 1926 he produced his

living autobiography "A Doctor's Memories." In the fall of that year, with Mrs. Vaughan, he went as delegate to the Medical Congress in the Orient, visiting China, Japan and the Philippines. On his return in the spring of 1927 he suffered an attack from which he never fully recovered.

For twenty years following his graduation in medicine Dr. Vaughan was engaged in active medical practice. Nevertheless his interest always centered in laboratory work. From the beginning he was attracted to chemistry, and the chemical viewpoint appeared prominently throughout his subsequent work. His first modest contribution on the separation of arsenic from other metals appeared in 1875. The action of poisons and their detection fascinated him to such an extent that before long his services were in demand as a medical expert and he became a recognized authority on toxicology.

It was but a step further to become interested in sanitary matters. The question of the pollution of wells and of larger water supplies arose, and a chemical examination at that early period was the only means of arriving at a decision. At this time Dr. Vaughan was called upon to investigate the not infrequent poisonings from cheese and other milk products. Though bacteriology was then in its infancy he soon realized that the poisonous products were in some way the result of bacterial action. He was among the first to teach that similar products could be the cause of cholera infantum and that this disease was therefore due to the contamination of milk. Without his fully realizing it at the time, the sanitary chemical work was leading him into the new and broader field of modern bacteriology.

It was soon apparent that the old chemical laboratory was inadequate for pursuing problems pertaining to health and disease. His broad vision indicated the need of a separate institution. Accordingly, he appeared before the Michigan Legislature of 1887 and secured an appropriation establishing the hygienic laboratory at the university. At this time some attempts were made in the old laboratory to apply the new science of bacteriology to the solution of problems arising in connection with the examination of waters, but it was seen that a thorough training in the new discipline was necessary. At that early period this could be obtained only in Germany. Accordingly, Dr. Vaughan spent the summer of 1888 in Koch's laboratory in Berlin, where under the direction of Carl Fraenkel a first-hand knowledge of the new methods was acquired.

The hygienic laboratory at the university was completed in the fall of that year and opened for work in January, 1889. It was the first laboratory in this country which offered systematic teaching of bacteriology to physicians and students. Before long the laboratory outgrew its quarters and in 1903 it was moved to the new, the present west medical building; since 1926 it has occupied a wing in the east medical building. For twenty years after the opening of the laboratory Dr. Vaughan was active as its director, and it was during this period that a further and important step in extending its service to the state took place. In 1903, on the occasion of the first serious outbreak of rabies in the state, Dr. Vaughan obtained from the Board of Regents authorization to establish a Pasteur Institute as a part of the hygienic laboratory. At that time the antirabic treatment was not given except in two or three places in this country.

Dr. Vaughan's investigations in the new laboratory covered many fields. At first, the examination

of water supplies claimed much attention, and in this connection he devised what he termed "the Michigan method" of analysis which made use of the experimental animal as a means of detecting harmful bacteria. His studies on food poisonings were likewise extensive and thorough. He sought the explanation of the germicidal action of normal serum and found it in the complex chemical constituent nuclein. Even more important were his studies upon the nature of the bacterial poisons or toxins. He devised an ingenious "tank" method for growing pathogenic organisms in mass quantities in order to obtain a sufficient amount of the cells for the purpose of studying the bacterial proteins which he was able to break up into two portions, one toxic and the other nontoxic. He utilized these results in formulating a valuable theory bearing upon the nature of hypersensitiveness and of fevers. As an earnest and enthusiastic investigator Dr. Vaughan had few equals. His extraordinary capacity for writing found expression in more than two hundred publications, not including his more pretentious works, on physiological chemistry, on ptomaines and leucomaines, on cellular toxins, on protein split products, on infection and immunity and on epidemiology. As an editor he founded the *Physician and Surgeon*, the *Journal of Laboratory and Clinical Medicine*, and served as the first editor of *Hygeia*. During his thirty years of service on the Michigan State Board of Health he did much to spread the growing knowledge of sanitation and public health.

No mention of Dr. Vaughan's activities would be complete without reference to his services in the army. Intensely patriotic, at the outbreak of the Spanish War he volunteered his services and saw active service at Santiago where he contracted yellow fever. The most deplorable fact in connection with that war was the outbreak of serious disease among the troops in the different concentration camps. Laboratory methods were non-existent in the camps, and the prevailing disease was called indigestion, malaria or typho-malaria, rarely by its true name—typhoid fever. At the close of the war a commission, consisting of Majors Walter Reed, V. C. Vaughan and E. O. Shakespeare, was appointed to investigate the outbreak. The final report of that commission was prepared by Dr. Vaughan, the only surviving member. It was a classical contribution to the epidemiology of typhoid fever. This report forcibly attracted attention to the necessity of conducting future military campaigns under strict hygienic conditions. In the interval between this and the recent war improved diagnosis and immunization made it possible to avoid this terrible scourge.

Upon our entry into the late war, Dr. Vaughan was again called upon to give his services. As one of the board in charge of the communicable diseases in our camps, he served with ability and distinction, receiving the rank of colonel, the Distinguished Service medal and the decoration of the French Legion of Honor. More recently he was the recipient of the Kober medal. His work during the two wars brought him full recognition as a leading epidemiologist.

As a member of the National Research Council which came into being at the request of President Wilson, Dr. Vaughan participated in the work of that body by his wise counsel and his vast experience.

It is as an instructive and inspiring teacher that Dr. Vaughan will be remembered by the thousands



of students who had the opportunity and privilege of listening to him. He freely drew upon his experiences in life and by his masterly presentation made the lectures interesting and forcible.

Unquestionably the greatest service which he rendered to the cause of medical education came during his tenure of the deanship. At the time that he entered this office the new laboratory methods of instruction were just coming into their own. With his clear foresight he recognized the importance of having productive scientific men upon the faculty, and it was this fact which enabled him to get together men of outstanding ability, thus placing the medical school of the university in the front rank of the schools in the country.

Dr. Vaughan's interest in the investigations of his colleagues was not less than that in his own researches. He lived, so to speak, in the laboratory and was never so happy as when a new fact or result rewarded his work. He loved his fellow men and freely gave of his time and energy. As a scientist and educator he was among the first. He has left an enduring impress in both fields. A great leader, a constructive thinker and a broad idealist is gone.

FREDERICK G. NOVY in *Science*.

## BOOK REVIEWS

**GYNECOLOGY.** A Textbook of the Diseases of Women. By Lynn Lyle Fulkerson, A.B., M.D., F.A.C.S., Instructor in Obstetrics and Gynecology, Cornell University Medical School, etc. Cloth, 842 pages. With six hundred and twelve illustrations, three in color. Philadelphia: P. Blakiston's Son & Co. 1929. Price \$9.00.

This book covers the entire subject of gynecology, including pelvic anatomy, operations on the kidney, gut and even hemorrhoids. The text is clear and to the point and the illustrations show what they are supposed to show. Unfortunately most of them, except those illustrating technic, are borrowed from well known textbooks. This is disappointing because one expects new cuts in a new book. However, to the student, for whom the book is obviously intended, the cuts are new. Therefore the book can be recommended to the student as covering the subject in a satisfactory manner. A. E. H.

**A STUDY OF MASTURBATION and THE PSYCHOSEXUAL LIFE.** By John F. W. Meagher, M.D., F.A.C.P., Neurologist to the Mary Immaculate Hospital, Jamaica; Consulting Psychiatrist to the Kings Park State Hospital, etc. Second edition. William Wood & Company, New York. 1929. Price \$2.00.

The author believes that masturbation is practically universal in the male at some period of childhood or adolescence. Under the term "masturbation" he includes all "sex manifestations" of pre-adolescent and infantile periods of life. This includes all manifestations of "autoeroticism" of the older writers.

He believes the habit has some baneful influence but does not think that serious mental and physical ailments are the result. Often they must be interpreted as the cause rather than the effect of masturbation. The mental and moral aspects are probably more important than the physical in the deleterious effect of this practice. H. L. D.

**THE CLINICAL ASPECTS OF VENOUS PRESSURE.** By J. A. E. Eyster, B.S.C., M.D., Professor of Physiology, University of Wisconsin, Associate Physician, Wisconsin General Hospital, Madison, Wisconsin. New York: The Macmillan Company. 1929. Cloth, 135 pages. Price \$2.50.

Every doctor who is interested in the circulatory apparatus would do well to read this monograph. The author shows his subject has been studied in detail by the presentation of the mechanics of the heart and blood vessels. Clinical facts of venous pressure are discussed in the normal as well as in abnormal conditions which cause changes in the circulatory tree. Case histories are given to illustrate these various pathological problems. The book should stimulate interest in this subject. A. M. G.

**GASTRO-INTESTINAL DISEASES.** Lectures delivered at the James Mackenzie Institute for Clinical Research, St. Andrews Winter Session, 1927. Edited by Professor David Waterston, M.A., M.D., F.R.C.S. (Edin.) Bute Professor of Anatomy, University of St. Andrews. Oxford University Press, American Branch, 35 West 32nd Street, New York City. 278 pages. Price \$3.25.

This small volume contains eleven comprehensive lectures, each delivered by a specialist in his particular line. The reader will here find, described in a very clear and concise form, excellent material on the ocular manifestations of gastro-intestinal disorders, influence of diet on the physiology of the stomach, superficial pain, symptomatology in dyspepsia, gallbladder disease, hematemesis, surgical aspect of ulcer, early symptoms of cancer of the stomach, recent views on carcinoma of the colon, abdominal dissemination of malignant disease, and diagnosis of acute abdominal conditions. A. C. C.

**THE ROBERT JONES BIRTHDAY VOLUME.** A Collection of Surgical Essays. Oxford University Press, American Branch, 35 West 32nd Street, New York City. 434 pages, illustrated. Price \$13.00.

This book is made up of a collection of essays, each written by a master, in honor of the seventieth birthday of Sir Robert Jones. Noteworthy is the preface, by Sir Berkeley Moynihan, which is a model for grace and diction, setting forth the virtues and professional standing of his old friend.

The first essay is by E. Muirhead Little on "Orthopedics Before Stromeyer." It is fascinating throughout and well worth a careful study by even those not interested in orthopedic surgery.

There are two chapters on congenital dislocation of the hip, one by Ernest W. H. Groves, the other by our own Nathaniel Allison, both outstanding contributions. Other outstanding chapters are "Fibrocystic Diseases of the Bones," by Elmslie, "Acute Infections in Bone," by Starr, "Infantile or Cervical Coxa Vara," by Fairbank, "Astragalectomy," by Laming Evans, and "Fracture-Dislocation of the Ankle-Joint," by Trethowan.

One feels that it is unjust to single out any of the essays for in doing so the reviewer is but naming the subjects in which he has special interest. All the lectures are worthy of careful study by any one engaged in surgery, for they show more emphatically than any book of which the reviewer knows to what degree of development the specialty of orthopedics has attained. A. E. H.

# THE JOURNAL

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### ORIGINAL ARTICLES

#### THE ETIOLOGY OF COUGH\*

STUART PRITCHARD, M.D.

BATTLE CREEK, MICH.

When we are called to the bedside of a patient who has a cough the question to decide is how we can relieve it. Those of us who are interested in general medicine feel that cough is one of the most common symptoms we have to treat, particularly at this time of the year. Cough is only a symptom; therefore we should find out the etiological factor and treat it.

There are a number of types of cough which are interesting to study. When we find an acute, dry, hacking, non-productive cough, we think immediately that the cough should be eased and soothed. Take a case of early pneumonia, before the spread of the infection to the parenchyma of the lung. We can easily increase the pleural involvement by a great deal of strenuous coughing and the patient's rest would certainly be disturbed, which is of therapeutic importance. Cough embarrasses the heart, particularly in pneumonia in old people, and metabolic changes of the body are increased, thereby interfering with treatment. Irritating cough may cause the surgeon much embarrassment following a laparotomy. In such cases any irritating cough must be relieved.

The loud, juicy, productive cough which all the neighbors diagnose immediately as tuberculous seldom is so. The type of cough we have in tuberculosis is not characteristic, yet at the same time it has some things which are interesting. As Doctor Bryan pointed out this morning, the tuberculous patient seldom admits having a cough, and when you ask for a sputum sample he says, "I have none." Ask the patient to clear the throat and save the sample of sputum. Why? Because the ciliary epithelium along the bronchial tree will bring up the sputum through the night and deposit it

in the larynx and edge of the pharynx and you can sometimes make a diagnosis from this bronchial sputum which the patient did not know existed, by finding tubercle bacilli in it.

We may have cough from several sources. First, from any irritation, mechanical or chemical or infectious, which involves the mucous membrane of the upper and lower respiratory tract, such as the cough from a chronic sinus. We know the roentgenologist will sometimes show a picture of the sinus which does not give definite evidence of disease. Illumination fails to show it. Physical examination shows little, and yet we may have a cough, a characteristic cough indicating a low-grade chronic sinusitis. If the patient is examined every morning for three or four mornings by an otolaryngologist some oozing of secretion from the sinus can sometimes be found, and if the sinus is treated the cough is often eased or relieved.

It is unnecessary to tell you about the cough from teeth; you had an exposition of that this morning. There are cases where an elongated uvula causes cough but most of these are due to a chronic sinus beyond the uvula.

Laryngeal cough makes us think of one of two things. If accompanied by loss of voice, not acute, we naturally think of syphilis and tuberculosis. In syphilis we seldom have pain with laryngeal involvement, while in tuberculosis we seldom have extensive involvement without pain in swallowing and particularly if the epiglottis is involved the pain is severe on swallowing. If luetic, laryngeal tumescence exists without pain on swallowing.

Infections that may cause irritation of the mucous membrane of the lower respiratory tract may be discussed now. Primary bronchitis is found in European countries where the climate affects the sensitive mucous membranes, but as a rule in this country chronic bronchitis is a secondary manifestation.

We may have a cough from embarrassment of the circulatory system. There is the cough of myocardial degeneration in people over fifty. It is usually a winter cough. In the

\* Read at the 72nd Annual Meeting of the Missouri State Medical Association, Springfield, May 13-16, 1929.



summer the patient feels better. If the patient is able to go to a warm climate in winter there is generally a cessation of the cough. Why? Because the peripheral circulation is relieved by the warm climate. Digitalis in this instance will often give remarkable relief in a low grade bronchitis in people over fifty.

Again, we have the cough which comes from a lesion of the endocardium in young people which often simulates pulmonary tuberculosis, so it is sometimes difficult to make a differential diagnosis. In this type digitalis will also help us to differentiate. If the digitalis causes the cough to disappear we should suspect a low grade endocarditis which is sometimes very difficult to find.

Cough may come from pressure on the mediastinum, including aneurysm. For that reason X-ray should be used in making our diagnosis because a cough coming from such a condition is caused by pressure on the vagus or recurrent laryngeal and an oblique X-ray of the chest should be made to see whether the mediastinum is clear.

Pleural irritation is another cause of cough and it may exist without pain. In advanced pulmonary tuberculosis we can all cite cases where by strapping the side of the patient we practically relieve a very severe spasmodic cough because we have taken the irritation off the pleura. Where we have pleural adhesions over a lung apex a cold hand placed over the apex will result in cough but when placed over the normal apex no cough is produced. Pleural adhesions may cause cough. Irritation below the diaphragm is another cause. The so-called stomach cough is due to some irritation below the diaphragm, such as gallbladder disease.

Never treat a child for cough in the absence of acute upper respiratory symptoms until you examine the ear, because in the middle ear a foreign body or disease may be found. Skin irritation may be the cause of cough and, finally, cough may come from definite irritation of the brain itself. There may be a cough from irritation of some place in the wide distribution of the vagus nerve.

The Battle Creek Sanitarium.

#### DISCUSSION

DR. PRESTON M. HICKEY, Ann Arbor, Michigan: In the X-ray film it is sometimes difficult to differentiate between the shadows cast by pulmonary congestion and those caused by tuberculous infiltration.

In the study of the heart we like to rely on films at a considerable distance, say seven feet, between the X-ray tube and the film, so that we get a good outline of the cardiac shadow uncomplicated by distortion. At seven feet the X-rays are practically parallel and the shadow approximates the real size of the heart. Disturbances of the cardiac outline caused by cardiac pathology are usually quite well

brought out at that distance. Recently we have been making lateral films of the chest at a distance of ten feet. These give us a lateral projection of the pulmonary and cardiac structures with even less distortion than in the postero-anterior projections, and by comparison of these two films, namely, the lateral film of the heart and mediastinum and the seven foot postero-anterior film of the cardiac area, we can study the cardiac pathology better. We will not ordinarily get pulmonary congestion unless there is disturbance in the cardiac outline, a point of value in the elimination of pulmonary conditions due to cardiac pathology.

We have found the lateral plate of great value in the study of interlobar effusions, which are often very difficult of detection by ordinary clinical methods, and difficult of detection also in the postero-anterior projections. During the recent influenza epidemic we found several cases of chronic cough where a lateral plate of the chest enabled us to demonstrate very graphically a collection of fluid, particularly between the upper and middle lobes, or what we like to call the anterior lobe of the chest, and were able to watch the gradual disappearance of the effusion and the disappearance of the cough reflex.

### A STUDY OF SPINAL FLUID IN EPIDEMIC MENINGITIS\*

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AND

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This is a study of the spinal fluids from 45 cases of epidemic meningitis admitted to the Contagious Service of the General Hospital from April 6, 1929, to August 8, 1929. Of the 45 cases 27 recovered and 18 died, a mortality rate of 40 per cent. The youngest, a Mexican infant two months old, lived 8 weeks. The oldest was 76 years of age. The average age was 23.7 years. The average spinal fluid cell count on admission was 16,903, the maximum count was 57,000 and the minimum count was 415. In 14 cases the cell count on admission was 20,000 or greater. The differential cell count showed polymorphonuclear leukocytes to be present in almost all cases in percentage of 95 or more. The meningococci were identified in all cases except one; in that case the patient had received his initial intraspinal treatment of antimeningococcic serum before admission. It is a working rule of the hospital that all cases of purulent meningitis with intact tympanic membranes shall be considered epidemic meningitis until proved otherwise. In a vast majority of such cases a careful search will reveal the organisms. The average white blood count was 22,609, ranging from a maximum of 45,000 to a minimum of 4,000. As a rule epi-

\* From the Contagious Service of the Kansas City General Hospital.

demio meningitis produces a pronounced leukocytosis.

In one of the 45 cases we encountered the syndrome of Froin. The few cubic centimeters of fluid that could be withdrawn on spinal puncture were xanthochromic, appeared much like blood serum, and clotted almost immediately in the tube. Coagulation of this fluid was almost completely inhibited when some of it was received in a 2.5 per cent solution of sodium citrate. It has been our experience to find that in cases presenting this syndrome death usually ensues within forty-eight hours after the spinal fluid is first observed to clot.

In making a study of the cytology of spinal fluids in epidemic meningitis one encounters many difficulties. It is very difficult to make satisfactory smears and stains. This is very largely due to the marked degeneration of the polymorphonuclear cells encountered in most cases, especially in their most purulent state. We readily recognize in spinal fluids from epidemic meningitis two types of cells, namely, polymorphonuclear neutrophils and mononuclear cells. Numerous investigators, notably Kubie and Schultz, have identified in normal spinal fluids polymorphonuclear neutrophils, eosinophils, which very rarely appear, lymphocytes, mononuclear phagocytes and arachnoid lining cells.<sup>1</sup> Lymphocytes appear in relative count in the proportion of 93 per cent or better.<sup>2</sup> Essick (1920), in experimental work on the cerebrospinal fluid of a cat, injected 1 to 6 cc. of sterile, partially laked red blood corpuscles into the subarachnoid space by replacement of fluid. There ensued a sterile meningitis accompanied by the outpouring of polymorphonuclear and transitional cells. In the next 48 hours the polymorphonuclear forms almost disappeared while the mononuclear elements increased in number. Both types of cells were actively phagocytic from the start.<sup>1</sup> It is obviously impossible that one using the usual methods of staining would be able to identify and differentiate accurately in these purulent spinal fluids of meningitis the various types of mononuclear cells. These are undoubtedly chiefly lymphocytes. On numerous occasions, especially early in the disease, we identified large mononuclear cells, or what Greenfield and Carmichael state the American authors often confusingly term endothelial cells.<sup>3</sup> These cells were not observed to be phagocytic for the meningococci. In three instances we observed what appeared to be meningococci lying within the cytoplasm of lymphocytes.

We have frequently encountered spinal fluids presenting uniformly small polymorphonuclear

cells, cells a very little larger, if any, than small lymphocytes. If staining is not carefully done these cells may easily be interpreted as lymphocytes. This causes us to recall that we have seen blood smears from conditions unrelated to meningitis present uniformly small polymorphonuclear cells. These small cells as seen in spinal fluids, we have here observed, have for the most part definitely multilobular nuclei and could not be, according to Arneth's classification, in this percentage, either transitionals or young polymorphonuclear cells. We are rather inclined to interpret this variation in size of the cells to chemical conditions, i. e., concentration of salts, osmosis, and specific gravity of the fluid, the size of the cells being dependent upon their fluid content which the chemical state of their floating medium permits.

After considerable experience with the spinal fluids in epidemic meningitis one learns to estimate the cell count fairly accurately from its appearance in the test tube. It requires from 800 to 1000 cells to cause a definite turbidity in the fluid.

One of the greatest problems in the management of any case of epidemic meningitis is to know when to stop treatment. We now feel that many cases have in the past been over-treated. On the other hand, there is the ever present danger of recurrence of symptoms and spinal fluid findings if treatment be discontinued too soon. We have sought certain findings which would guide us in our judgment as to the time best suited to cease treatment. In cases that will terminate favorably we have observed that the meningococci usually disappear rapidly from the spinal fluid after the introduction of intraspinal serum. Often one such injection of serum is sufficient to remove them completely from the spinal fluid, both on examination of smears and in cultures. The disappearance of the organisms we consider a good prognostic omen. With the diminishment of general symptoms the proportion of lymphocytes usually is found to be increased. This may occur with or without any great change in the total cell count. In 27 cases that recovered, treatment was stopped in two cases with spinal fluid cell counts of 6,300 and 2,650, with polymorphonuclear percentages of 87 and 66 respectively. Of the remaining 25 cases the cell counts ranged from 90 to 1800, an average of 871 cells. The percentage of polymorphonuclear cells in differential count ranged from 13 to 90, an average of 53.6 per cent. This consequently gives an average of 46.4 per cent of mononuclear cells. We consider, therefore, a spinal fluid which is free from organisms and whose total cell count is approximately



1000, with a differential count of near 50 per cent or more of lymphocytes, as a criterion for the cessation of treatment. We interpret the appearance of mononuclear cells in the spinal fluid in increasing proportions as a good prognostic sign.

Very frequently serum sickness is encountered. This occurs usually from the eighth to the twelfth day. We have observed that this increases the spinal fluid cell count a thousand or more cells, but with a very large percentage in lymphocytes. The mononuclear elements of the blood stream also increase. Often the serum sickness produces an exacerbation of preexisting symptoms; in such instances diagnosis can only be made by a study of the spinal fluid and blood cells.

In this discussion we have not attempted to advance any definite rules or suggest any group of findings that may be employed unerringly either in diagnostic or therapeutic work. We have set forth some observations that we consider of value in guiding us in our work. It is evident that each case is largely an individual problem and must be managed accordingly.

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### CLOSURE WITHOUT DRAINAGE IN ABDOMINAL SURGERY\*

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In many instances borderline cases present problems which offer the widest variation of opinion in regard to treatment. That the use or omission of abdominal drainage is often a matter of the personal equation, determined by the individual surgeon, was once expressed by the epigram, "When in doubt, drain."

Although this, like many trite statements, may appeal to the imagination of the medical student or the inexperienced individual ambitious to do surgery, it conveys nothing to one who has passed through the embryonic stage and learned the inadequacy of such advice in its application to the problems that arise during the handling of cases where the use or omission of drainage calls for the most acute surgical judgment. The best illustration of this variance of opinion was expressed by an intern assistant who stated that often when he won-

dered whether or not the operator would insert drainage, he would arrive at his conclusion by about the same method as one would determine the outcome of an important issue by the toss of a coin.

This all goes to show that definite information and opinions regarding the indications and contraindications are meager. To say that one drains when in doubt obscures rather than clarifies the picture. What may be a difficult situation for one may offer no element of indecision for another. It is not the purpose of this paper to discuss peritoneal anatomy, histology, physiology and pathology, or the question of drainage in frankly infectious cases, or closure without drainage in obviously clean ones. One may find an abundance of such material in special papers or in that splendid monograph by Hertzler entitled, "The Peritoneum." My remarks will be limited to borderline territory where the element of doubt as to whether or not to drain most often enters.

Any type of drain introduces a foreign body, and the presence of a foreign substance in living tissue immediately presumes one of the following results which, if possible, is to be avoided: (1) Foreign body reaction, (2) introduction of infection, single, multiple or cross, (3) weakening of the abdominal wall with delayed union, possible diastasis, or actual hernia, (4) scar tissue formation, (5) adhesions, (6) sloughing of the intestinal wall followed by fecal fistula, (7) pressure with sloughing of large or small vessels causing moderate or severe hemorrhage. It has the following merits: (1) An exit for infection and its by-products including devitalized debris, (2) a safety valve against leakage from the weak wall of an abdominal viscus, (3) overcoming the dangers arising from an unavoidably weak suture line, (4) an outlet and control for general oozing from a raw or congested surface.

A buried foreign body, such as a silk suture, in a sterile field usually causes the ordinary sterile foreign body reaction, encapsulates and remains harmless, but occasionally a low grade infection sets in, a drainage sinus forms down to the foreign body and persists until it is removed. Strands of silk or silver wire often have to be removed from hernias and other clean wounds with discharging sinuses, followed by prompt healing. These factors have caused the Lane splint to become obsolete.

A drain communicating with the outside not only has this same reaction but it often introduces an extensive infection in a wound which looked innocent at first, and in which it was thought that a drain was necessary only as a

\* Read at the 72nd Annual Meeting of the Missouri State Medical Association, Springfield, May 13-16, 1929.

safety valve. Then, when an extensive infection occurred and the wound broke down and discharged quantities of pus, we lulled ourselves to sleep with the satisfactory feeling that we had saved the patient's life by affording an outlet for such filth when, as a matter of fact, it had entered along the course of the drain. Such infections may be caused by single or multiple strains of bacteria. Many of these incisions would have healed by primary union if they had been closed without drainage.

If one finds untoward symptoms, such as an increase in temperature and pulse, a dressing on the second to fifth day will sometimes reveal a slight wound infection. This will disappear in a short time after removing one or two sutures, spreading the wound a centimeter or so, saturating with mercurochrome or iodine and frequently repeated alcohol dressings.

The introduction of drainage always presupposes a break in the continuity of a firm closure and a spot where it is possible to have the beginning of weakness, diastasis of muscles or hernia. Pressure on nerves, muscles or blood vessels may cause devitalization and increases the amount of scar tissue with possible adhesions. It is true that peritoneal adhesions often form after clean abdominal closures, but there was a cause already present without introducing a drain to make them worse. The aptitude to the formation of adhesions following drainage and the strong possibility of their absence in cases where it is omitted, hold true for the majority of cases. Adhesions hold so many latent factors for evil that it behooves the surgeon to avoid everything having a tendency to form them. A fecal fistula or secondary hemorrhage may occur from too firm or too long pressure of a tube on a strong or weak loop of intestine or blood vessel.

When a drain must be inserted to afford an outlet for infection or its by-products, as a safety valve against leakage, or to overcome the dangers likely to arise from the fear of a leak from a weak suture line or abdominal viscus, its dangerous possibilities must be disregarded and it must be resorted to, but from close observation one is led to believe that a drain is more often unnecessarily and faultily introduced than omitted by poor judgment.

Oozing which cannot be controlled always necessitates a drain because unchecked hemorrhage into the peritoneal cavity without an outlet is always dangerous. Many cases of secondary shock are due to uncontrolled, concealed hemorrhages. A drain not only affords an outlet but acts as a tampon to control the oozing, and adhesions stimulated by a drain are less extensive than those caused by fibrin formation during the absorption of a large

amount of blood from the peritoneal cavity. Although we close ruptured ectopic pregnancies without drainage, such abdominal cavities if examined later may show as extensive adhesions as are found following extensive infection of the peritoneum. Blood serum is an excellent culture medium and drainage is often followed by saprophytic colon bacillus, staphylococcus or streptococcus infections which may enter through the drainage tract. It is our custom now in many of these cases, most of which show surgical shock, to aspirate the blood, citrate it and perform an autotransfusion. The autotransfused blood not only replaces the lost blood but minimizes the extensive organization of blood clots and resulting adhesions.

The following factors play an important part in determining whether or not one drains in borderline cases: (1) Precise, careful technic, (2) debridement, (3) field sterilization, (4) firm closure of possible leaks, (5) clean-cut incisions and sharp dissections, (6) care in handling tissue and accurate, delicate suturing, (7) knowledge of anatomy, with preservation of blood supply, (8) knowledge of normal tissue and of the surgical pathology encountered at operation, (9) careful hemostasis without strangulation of tissue.

Precise technic does not mean speed or hurry. It means the planning of each step of the operation so that it is thorough and completed before proceeding to the next. It means omission of wasted moves or lost motion, and methodical, rapid, thorough completion of each step before proceeding to the next. It means the organized exploration of the abdominal cavity without revisiting the same field again and again.

By debridement one should remove all pathological and devitalized tissue down to a healthy field composed of vital tissue with a well preserved blood supply. Field sterilization means a careful, primary sterilization and preparation, and then preservation of asepsis throughout the operation. Donning gloves properly, discarding them when contaminated, and training all assistants in proper preservation of asepsis are important factors. Removal of all or a part of an abdominal organ should be performed with the actual cautery wherever possible. This refers particularly to the appendix, diverticuli, and resections of the intestine. Due to their contiguity with nearby blood vessels and the danger of sloughing, the uterus and gallbladder must be removed by sharp instruments. In cholecystectomy both sides of the divided duct are thoroughly swabbed with 7 per cent iodine or mercurochrome. Intra-abdominal suturing should be accurate,



firm, and sufficiently reinforced, and placed in healthy tissue well beyond the infected field. If one is not sure this has been done, drainage must be resorted to. Sharp knife dissections should be used whenever possible and tissue should be gently and accurately approximated without strangulation. Too much tissue should not be left beyond the point of ligation of pedicles, but enough should remain to prevent slipping and hemorrhage. Catgut ligations on pedicles containing large active vessels should be cut long to prevent knots from crawling and causing hemorrhage.

In discussing the omission of drainage in specific instances we shall consider only those cases where the omission or introduction of drainage is still debatable, and only briefly mention those cases in which the majority of surgeons admit its contraindication but where we have observed it is still being used.

*Tuberculous Peritonitis.*—This should never be drained because of the likelihood of adhesions, the introduction of secondary infection, the great danger of causing intestinal obstruction, or the formation of a persistent tuberculous sinus. Fecal fistula is a very common, persistent, unfortunate sequel after drainage and almost impossible to close.

*Gallbladder.*—In chronic cholecystitis with or without stones or adhesions, where the gallbladder wall is not edematous or thick and the cystic duct is small, easily collapsed, and can be firmly ligated, the duct is double ligated, the mucosa treated with iodine, mercurochrome or phenol, buried behind the peritoneum, the peritoneum of the liver fossa whipped over with plain catgut, and the abdominal wall closed as a clean operation. There is no danger of leakage if the cystic duct has been firmly and double ligated and buried, and if the duct was not edematous or friable. In the latter event a soft rubber tube should be sutured to the stump of the duct.

In recent years more accurate diagnoses of infected gallbladders are being made. Where formerly the clinical picture was obscure because of the low grade chronicity of the symptoms, chronic dyspeptics are now often found to be the subjects of low grade chronic cholecystitis, which has not responded to palliative treatment. This is the type of case that so often shows a low grade cholecystitis in a gallbladder which ought to be removed, and the operation simplified by clean closure.

*Duodenal and Gastric Ulcers.*—With the advance in accuracy of gastro-intestinal diagnoses more stomach and intestinal operations are being performed. It goes without saying that when suture lines are strong stomach and intestinal operations should have clean closures.

In perforated ulcers where the perforation is recent with only a moderate amount of spill and indications of only a low grade local, chemical peritonitis, the fluid is aspirated by means of a suction apparatus, the site of perforation closed by a double layer of sutures, reinforced by a piece of omentum which is sutured to the line of closure, and a gastro-enterostomy done or omitted, as indicated, and no drainage introduced.

Although we are forced to admit that the greater part of the irritation is due to a chemical peritonitis, if we admit also that ulcers are in the majority of cases caused by a hemogenous infection, there must be some bacteria present. However, this bacterial content is small compared to the amount of chemical spill and the peritoneum has the power to handle a moderate amount of infection. We too often undervalue the resistance and reparative power of the peritoneum, through its abundant blood supply.

Cushing showed by a series of interesting experiments that the upper part of the alimentary canal was practically sterile, and could be made sterile by the ingestion of sterile water and food for twenty-four hours.

When the operation after perforation shows that a fairly extensive peritonitis is present and the pelvis contains fluid this is often drained through a stab wound above the symphysis, but many men are now aspirating and omitting even this drain, and introducing a small drain down to the peritoneum to overcome the irritation of pancreatic juice in the abdominal wound. I believe that the patient stands as good a chance by the omission of intra-abdominal drainage as by having one introduced, provided free use is made of the suction apparatus. If he will die without he will probably die with drainage, just the same.

*Recent Traumatic Perforations of the Stomach, Duodenum and Intestines.*—These are treated in the same manner as perforated duodenal and gastric ulcers when they are located above the lower part of the first loop of jejunum. As one descends in the alimentary canal the bacterial content becomes more abundant and virulent and drainage should be used in the majority of cases, the character to be determined by individual judgment.

*Appendicitis.*—Contrary to the opinion of many surgeons, it has been our experience that in operations for acute gangrenous appendicitis without perforation, the mortality has been as low as in catarrhal cases, and that it has been higher in the so-called "red-hot ones" in an acute stage of hyperemia, with the peritoneum covered with a membranous exudate, the lumen filled with pus and the whole inflam-

matory process active. When gangrene has supervened an immunity and resistance of the individual seems to have developed. The lymphatics have become coffer dammed. When the appendix is not retrocecal and the stump and head of the cecum are not too edematous and can be inverted, drainage is omitted, and strange to say, out of over one hundred of these cases, not a single death has been recorded. I am frank to admit, however, that I am distinctly afraid of any type of acute fulminating, or acute gangrenous, postcecal appendicitis, and always drain these after appendectomy, unless the serosa can be coapted and there is no inflammatory exudate. A raw area, uncovered by peritoneum, and an open meshwork of connective tissue rich in lymphatics offers a prolific, fertile nidus for the localization and upward spread of infection.

The milky fluid present in these cases is not pus but a protective lymph filled with phagocytes. Even its aspiration is not necessary.

*Pelvis.*—Unless the majority of tubal infections have passed the stage of active inflammation they are not suitable for surgery. In the great majority of instances, if a case is in the drainage class, it should not be submitted to an abdominal operation. Most of those with walled off abscesses can be reached through the culdesac. Occasionally one is forced to drain them through the abdomen. A case of salpingitis in the operable stage practically never needs drainage, except for uncontrollable oozing or in mistaking an acute salpingitis for acute appendicitis.

Fallopian tubes which have the gross appearance of a chronic inflammatory process often microscopically prove to be tuberculous. Drainage in these is often followed by a uterine fistula through which menstruation occurs freely at each menstrual cycle. It may even happen after abdominal drainage in cases of pyosalpinx, where a wedge-shaped portion of the uterine cornu, including the uterine end of the tube, has been removed. Occasionally these close spontaneously after several months but more often the fistula must be excised and the opening closed at a second operation. I have performed three of these operations in the past three years, and have seen three other patients who are biding a little more time before submitting to surgery.

There are still many who are inserting abdominal or vaginal drainage after complete abdominal hysterectomies. There seems to be no logic for this and the procedure is fraught with many dangers. The vagina should be prepared more scrupulously than the abdomen by shaving the vulva, then scrubbing it and the vagina thoroughly with soap and water

followed by alcohol. The field should then be painted with a mixture of acetone, alcohol and mercurochrome or iodine. When the vagina is opened from above, the cervix is everted and saturated again with the mercurochrome mixture, and then a two-inch tape, saturated with the same mixture, is packed into the vagina from above and removed from below at the completion of the operation. Under such precautions, the use of a drain is not only unnecessary but may introduce an infection, particularly if it is a vaginal drain. In the last named category two cases of intestinal obstruction have been observed caused by a knuckle of gut which followed or was pulled down into the drainage tract after the removal of a tiny wick which had been introduced into the pelvis through the vagina after a complete abdominal hysterectomy.

I have observed many men use drainage after vaginal hysterectomies. I cannot see any reason for this. If the vagina is carefully prepared, as above described, careful technic used, and the anus separated from the field, these operations should be treated as clean laparotomies and closure made without drainage. Not even vaginal packing is inserted.

In *borderline cases* we are assuming the attitude more and more each day that a drain introduced into the abdomen is an extraneous foreign body, a necessary evil in many instances but fraught with so many immediate and remote dangers and untoward sequelae that whenever good surgical technic and judgment make its omission permissible, it is omitted.

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## RODENT ULCER

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*History.*—Rodent ulcer as a clinical entity was first described by Jacob in 1827, and since then the lesion has received the appellation, "Jacob's ulcer," at least as a synonym. Its character as a neoplasm was originally recognized but the exact nature of the process was not understood until 1900 when Krompecher traced the neoplastic cells to the basal layer of the stratum malpighii. Previous to Krompecher's authoritative work the pathology had been interpreted as cylindromatous by Billroth in 1854, and as endotheliomatous by Koster in 1867. Although since 1900 the epithelial nature of the process has been recognized, the exact source of the proliferative ectoderm has been the cause of considerable controversy.



Krompecher has maintained that it is derived from the basal cells of the malpighian layer, and rarely from isolated cell masses beneath this layer. Dubreuilh and Auché, just before Krompecher, gave a like histological descent but did not stress the basal cell origin. Bornmann insisted that the cell nests arose from epithelial rests and secondarily united with the epidermis, a condition which Krompecher agreed may occur occasionally. Mallory at one time believed they came from the matrix cells of the hair follicles, but Kyrle differentiated benign growths arising from the hair follicles and those from the basal cells of the epidermis. Sweat gland, hair follicle, embryonal rest, and sebaceous gland all have been accused at one time or another, but the opinion of Krompecher is best confirmed and most generally accepted. Rodent ulcer, however, was still thought to arise from sweat gland, sebaceous gland, or hair follicle by DaCosta in 1925, whose opinion in this instance does not coincide with that of other observers.

A full and accurate account of the history of the theories of the origin of basal cell cancer is given by Coenen.

*Synonyms.*—The term "rodent ulcer" has many equivalents. It is variously known as Jacob's ulcer, cancrioid ulcer, *ulcus rodens*, *ulcere cancreux*, *noli me tangere*, *ulcus exedens*, *der flasche hautkrebs*, rodent tumor, epithelioma, basal cell cancer, and carcinoma basocellulare. Some authors differentiate basal cell cancer and rodent ulcer, limiting rodent ulcer to relatively benign cancer arising from isolated epithelial cell nests, or to particular clinical conformations of basal cell cancer. Stelwagon does not include "rodent ulcer" in his list of synonyms for basal cell cancer.

Undoubtedly the appellation is a blanket form. It is not scientifically constructed nor as a rule scientifically used. It is solely descriptive, and describes nothing specifically, for lesions due to tuberculosis or to syphilis might be so called with equal aptitude. And it is frequently used indiscriminately for either basal cell or prickle cell carcinoma of the skin despite the marked clinical and histopathological differences between these two types of neoplasia. In view of the complete absence of strict scientific meaning of the name, it should be dropped. The appropriate title based upon the histopathology should be used instead. For the purposes of this paper, it will be considered synonymous with carcinoma basocellulare as described by Krompecher, i. e., the relatively benign type of skin cancer derived from the basal layer of the rete malpighii, as distinct

from the malignant prickle cell type of carcinoma.

*Definition.*—The basal cell epithelioma is a chronic, relatively slow-growing, progressive ulcer with rolled, pearly, telangiectatic borders, usually covered with a brownish crust, the removal of which causes bleeding. It is characterized clinically by occurrence above the clavicle in the great majority of cases, principally on the face, an origin upon a previous, minute, benign lesion of the nature of a wart or seborrheic keratosis, and a slow, progressive growth with late involvement of the deep layer of the superficial fascia and even later involvement of deeper structures. Pathologically it is characterized by relatively bulky, compact masses of dark-staining cells connected by narrow strands of like cells, lying in dilated lymph channels or artificial spaces from which they readily shrink on fixation, epithelial cells whose continuity with the epidermis is readily discernible in serial sections and which are rather small in size, have large nuclei, cytoplasm that is not densely proteinous, and have not clear intracellular bridges.

*Etiology.*—Basal cell cancer is a very frequently met skin lesion, constituting over one per cent of all dermatoses, according to Hazen. The 256 cases reported by Broders constituted 12.8 per cent of 2,000 cases of general epithelioma at the Mayo Clinic over a period of about fifteen years.

There is a distinct racial predominance according to Molesworth who in a survey of a large number of cases at Sydney, Australia, found that the lesion is peculiarly rare among the Chinese and Negro. The Irish, with their fair hair, lightly pigmented irides, and tendency to freckle, were the most frequent sufferers. This racial difference in susceptibility he thought was associated with the ability of the skin to produce pigment, and the action of the ultraviolet rays of sunlight upon a skin unable to tan is very liable to initiate the proliferation. Sutton in 1914 observed that, "An important factor in the etiology, as Pusey has suggested, is a peculiar quality of the skin, acquired or more frequently inherited, of a harsh, dry, seborrheic nature." Of this peculiarity, Pende says, "As a rule, cutaneous hypo-evolutism is accompanied by a deficiency of pigment. . . . This skin with insufficient pigmentary function reacts to the sun's rays with reddening, desquamation, and the formation of chloasmas and freckles, rather than with a greater production of pigment, as occurs in richly pigmented skins. We know that freckles, which may also be produced independently of the action of

light, even on covered parts of the body, cannot be strictly differentiated from those small reddish-brown congenital discolorations,—true pigmentary moles. Both have a predilection for the skin of blond and red-haired persons, and are important stigmata of status degenerativus . . . and are generally found in hyposympathicotonic individuals." While there have been several hypotheses offered concerning the origin of multiple basal cell cancers, most of which stress the possibility of the throwing off of "infectious particles" from a single source, it seems certainly worth while to consider the possibility of multiple, primary origins in a "constitutionally predisposed" individual. There are undoubtedly many types of skins among "normal" people, examples of which are the highly evolved variety with its full development of pilosebaceous, sudoriferous, and pigmentary apparatus, as in the Mediterranean races, and the thinner, less pigmented, drier variety of Northern peoples. Individuals of any race may be observed who, while still falling within normal limits, verge toward hypothyroidism with its harsh, dry skin which appears without reference to climate; and on the other hand climatic conditions, such as wind, low humidity, cold, and overexposure to sunlight, may produce a similar type of skin in exposed parts of the body. The face and hands evidently suffer most from this acquired change; the face is, par excellence, the site of predilection for the development of scaling areas, plaques and keratoses which are recognized as precancerous.

In a consideration of 256 cases of basal cell cancer, Broders found that 96 per cent occurred above the clavicle. The distribution was as follows:

Location	Per Cent
Cheek .....	20.5
Eyelids .....	26.52
Nose .....	19.02
Forehead .....	6.71
Ear .....	5.22
Canthi .....	4.85
Temporal region.....	4.10
Neck .....	2.98
Upper lip .....	2.98
Occipitoparietal .....	2.61
Thoraco-abdominal .....	2.61
Elsewhere .....	1.6

Thus the face is involved in a proportion predictable upon the foregoing theoretical consideration regarding acquired predisposition; but why not the hands? They are exposed just as is the face. The difference is explicable at least in part in the difference in blood supply and warmth, in which the hands have a great advantage in their dependent position,

and their constant unconscious or nervous or purposive motor activity. If this explanation is to be valid, one must minimize the etiological effect of sunlight to account for the very pronounced discrepancy of 96 per cent occurrence on the face and less than 1 per cent on the hands. Is the difference in blood supply an adequate explanation?

The occurrence on the face is relatively rarely in the region traumatized by shaving, except just in front of the ear.

One is led to conclude that there is an anatomic reason in the background. It has been noted that the appearances of cancer on the face tend to follow the lines of embryonal fissures, which type of region is known to be unaccountably favorable to the development of anomalies. This is in accord with the frequency of occurrence in the constitutional variety of individual whose skin may be considered hypo-evolute.

Occupation as a predisposing factor has two aspects. The farmer is found by Broders to be the victim in 53 cases out of each 100. Molesworth notes the frequency in persons who lead an outdoor life. Also, workers with certain chemicals are often attacked. Stelwagon mentions the occurrence in petroleum and tar workers, the irritant coal tar products having a definite causative action in the production of keratoses, papillomata and malignancy.

The male sex is involved in the proportion of 3 to 2 in Broders' series, and of 2 to 1 in Sweitzer's. This may be associated with the types of life led by the opposite sexes; it may with equal probability be connected with the differences of skin type in association with the endocrine distinctions of the two groups.

Rodent ulcer is distinctly a disease of older persons. The average age in Broders' series was 56 years; Sweitzer's patients varied in age from 27 to 86 years.

The part played by trauma is distinctly doubtful. Sweitzer reports a definite history of trauma in 10 of 46 cases, while Broders finds that this factor had nothing to do with the development of the lesions in the patients of his series.

That there is very often a preexisting lesion of a benign and apparently insignificant character in which or from which the proliferation takes place, is a fact generally recognized. This may be of the nature of a mole, or wart, of greasy, scaly patch, or plaque, a seborrheic keratosis, a pimple, or eczematous patch. The histology of such lesions is quite variable but they have in common a certain amount of



acanthosis and parakeratosis, and the corium shows some chronic inflammatory change, fibrosis and capillary dilatation. In fact, Waldeyer said in 1895, "I do declare now most decidedly that if any kind of tumors have as regards their etiology and mode of development any relation to inflammatory process, 'tis the carcinomata." Ribbert stressed these inflammatory changes greatly and stated that they invariably preceded the development of the epithelial proliferation. He thought that the subepithelial capillary congestion in intimate relation to the epithelium suggested a diminution in the tissue tension, and a setting free of the regenerative forces in the adjacent epithelium. Thiersch (quoted by Sutton) had originally advanced the theory of absence of tissue inhibition as the cause of cancer, and Ribbert's ideas were a development of this. Janeway however showed rather conclusively that the corium changes by no means always preceded the epithelial downgrowth. He advanced the evidence that cancer cells grow into blood clot, a thing which they never do normally in a regenerative process, as proof that the proliferative power of the epithelium itself was enhanced, and that simply the hypothesis of absence of tissue resistance is inadequate to account for the cancer process. According to Janeway, Cohnheim's misplaced blastomere theory is a pure hypothesis; and he further showed that Borrmann was not correct in his claim that the neoplasia commenced always in isolated, subepidermal cell groups, with secondary junction of these cell masses with the surface epithelium. Janeway stressed the observation that there is an insensible gradation of cell types from the normal to the positively abnormal in direct continuity, and concluded that the cancer process, whatever its nature, is capable of perverting normal cells into the histological appearance at least of the atypical ones. Hanseman and Lubarsch (quoted by Janeway) believe the process to be one of metaplasia within a previously normal cell.

There are several known causes of skin cancer. X-ray, radium and arsenic produce skin changes characterized early by dryness and roughening, and later there appear keratoses which may become malignant. There are concomitant changes in the corium consisting of atrophy of the elastic tissue, some fibrosis, dilatation of the capillaries of the papillae, and obliteration of some of the larger vessels. The epithelial changes of X-ray dermatitis are as follows:

There is an early disappearance of the pilosebaceous apparatus and the sweat glands, though remains of the coil glands are still present after the

complete disappearance of the hair follicles. Rarefaction of the tissue just beneath the epidermis occurs and this papillary layer of the corium takes stain poorly. A peculiar hyaline degeneration of the corium follows. The corium thickening, due to the production of imperfect collagenous tissue in the lower parts. The arrectores pilorum muscle cells become swollen, vacuolated, and distended with hyaline material; they eventually completely degenerate. The arterioles and venules gradually obliterate with swelling of the endothelial cells and thickening of the intima. Telangiectasis of the superficial capillaries occurs. There is hypertrophy of the epidermis with long epidermal pegs, and scaling takes place. The malpighian layer thickens, the nuclei stain poorly and present vacuoles. The epithelial cells tend to grow into the corium, and there is an infiltration with mononuclear leukocytes at these points. Prickle cells with mitoses are seen and a beginning of pearl formation takes place.

These changes progress with continued growth of the epithelium to the formation of distinct cancer. Wolbach originally described these changes, though Marcuse first noted the dangers attendant upon exposure to the X-ray in 1896. One sees however that this is clearly the development of a prickle cell cancer from which basal cell cancer is to be differentiated. The changes in arsenical keratoses are closely similar to those of X-ray so that one is forced to admit that there is no known cause of such a kind for the so-called rodent ulcer.

Certain rather unusual, minute bodies are seen in the epithelium. These were at one time interpreted as coccidia and given an etiological significance. Borrel in 1890, and later others, showed that the suspected structures were degeneration products of the epidermal cells themselves, peculiar perhaps to cancerous epithelium but certainly not parasitic.

*Course.*—The tumor usually develops upon a preexisting lesion of some sort, as noted earlier. It may first appear as one of a small group of shiny, whitish or reddish, translucent nodules, which may be as large as a pea, or a scaly patch, or a warty, seborrheic keratosis. The nodules may be of weeks' or months' duration before ulceration occurs, giving rise to little or no subjective symptoms. There follows superficial abrasion which persists, enlarges, and thinly crusts. The crust, frequently knocked off so as to leave a shallow ulcer with a slightly elevated, pearly, slightly rolled border, reforms from the serous or sero-sanguinous exudate, which soon becomes viscid and purulent from secondary infection. The ulceration usually involves only a part of the original lesion; the remainder spreads slowly peripherally with steady lateral progress. Small, pearly, satellite nodules frequently appear beyond the edge of the ulceration, which

soon spreads so as to include them. The waxy border may or may not be slightly raised. Sometimes the formation is much like that of a volcanic crater, with a rapidly sloping, high, waxy border and ulceration with almost perpendicular walls down to a level slightly below that of the normal skin. The borders are telangiectatic, the base irregular and covered with a brownish crust the removal of which causes bleeding. There may be a marginal zone of a fourth to a half an inch of glazing, due to the lateral spread of the tumor cells in the superficial lymphatics. The breaking down of the part of such a zone nearest the center of the original site of activity is the method of lateral progression of the ulceration. As it widens, there may occur distinct healing in the older portions with firm scar tissue so that occasionally there is produced a morphea-like process, its circinate or segmental outline composed of waxy and ulcerated nodules and glazed, hard skin.

The subjective symptoms are at first slight or absent. With ulceration or perhaps a little before it there is a rather mild burning or itching or painful sensation, or a feeling of tension of the skin. The lesion is often picked at or otherwise traumatized. This knocks off the dried exudate, and each time a new crust is formed the lesion is a bit larger. With more considerable ulceration appear pain, absorption from the raw, infected surface, weakness and secondary anemia. In advanced ulceration there is added the depression of discomfort of long duration, loss of weight and strength, cachexia and terminal infection of one sort or another. The tendency of the process to remain superficial is marked, and only late in the course of the disease does it involve the deep layer of the superficial fascia which long stands in the way of its progress. When this is broken through the growth advances rapidly to the next firm structure in its path, such as bone or cartilage. The periosteum or perichondrium impede its progress, but when it gnaws through these it comes to involve the bones and deeper tissues. The disfigurement of a neglected case may be horrible; it slowly but relentlessly eats away the eye, nose, bones of the face and skull, and may invade the dura and brain, ultimately to cause death from encephalitis. Erosion of a large vessel may result in fatal hemorrhage. Invasion of the lymph glands occurs in like manner, for they are attacked if they lie in the path. But basal cell carcinoma does not tend to metastasize to lymph nodes in the manner that prickle cell cancer does. At times, particularly under certain forms of treatment, the cell type changes

to that of the prickle cell. When this occurs, more rapid ulceration and lymphatic metastasis takes place in the manner of malignant neoplasm. Metastasis of the basal cell tumor is by simple extension and very few authentic cases of its arising elsewhere than at the border of the original process have been reported. Fordyce, and Dubreuilh and Auché have reported such cases, according to Ewing.

The gross picture as the disease develops may be built up mentally by the consideration of the basic histopathology, taking into account certain influencing factors. Primarily, the process is epithelial proliferation. This is progressive in the sense that it will keep on until the patient dies unless extrinsic factors are brought to bear upon it. The patient's tissues may be more resistant, or less so; if they are quite resistant the proliferation will pile up upon itself, and if not resistant cancer cells will penetrate as well as extend laterally. The tumor may be slow or fast growing; it may have greater or less energy in insinuating itself into the tissues. Pressure, pressure atrophy, and decrease of nutrient exchange within masses of tumor cells lead to necrosis and ulceration. Secondary infection plays its part in the production of the picture. The tumor cells push into lymph spaces and dilate them; they make best headway laterally and superficially for obvious mechanical reasons. So they produce the typical physical characteristics of the peripheral zone, hardness, glazing, and translucence. By agglomeration, conceivably in a blind lymph capillary, they produce outlying nodules. In a tumor of "low virulence," which remains superficial, inflammation on an infectious basis may cause the neoplasm to be sloughed out locally so that the central region may then heal over, and grossly the process presents activity only at its border. With these considerations in mind, Hazen's grouping of basal cell cancers is seen as an expected clinical classification. He notates the following forms:

Flat basal cell neoplasm with some superficial ulceration.

Rolled edge rodent ulcer, with high, rolled, stony-hard margin that is pink-white and telangiectatic.

Nodular basal cell cancer, at first small papules which enlarge and may attain a diameter of almost an inch, with central necrosis and a hard edge.

Depressed scar-like epithelioma, deeply infiltrating and only late ulcerating. Frequently long overlooked.

Morphea-like carcinoma. Snow white lesion, with pearly nodules at the edge, showing late ulceration.

Cicatrizing growths, central healing and border ulceration.

Fungous growths, when the underlying tissue is very resistant.

Deep ulcerative growths involving the bone and periosteum, neglected cases.



Multiple basal cell cancers are not uncommon. The relationship between the separate lesions is doubtful.

The course is a long one and cases are on record of twenty years' duration. Incomplete removal or inadequate treatment may cause remarkable increase in the rapidity of growth, or metaplasia into the prickle cell form.

*Pathology.*—Basal cell carcinoma is a neoplastic proliferation of epithelial cells of ectodermal origin, producing a slow-growing tumor of local malignancy only.

The exact origin has been considerably disputed, being variously attributed to preceding inflammatory change in the corium with lowered tissue resistance by Ribbert, to misplaced blastomeres by Cohnheim (quoted by Janeway), originally isolated cell groups by Borrmann, metaplasia within the epithelial cell by Hansemann and Lubarsch (quoted by Janeway), embryonal rests, hair follicles, sebaceous glands, coil glands, and embryonal hair. Borrmann insists that the proliferation occurs in isolated cell groups beneath the epithelium, the cell mass secondarily uniting with the epidermis. Janeway shows that this is the case only at times, and that as a rule proliferation takes place from cells of the epidermis that were previously indistinguishable from normal cells, and further that the inflammatory corium changes do not invariably precede the epithelial proliferation and cannot be considered as an etiological factor despite Ribbert's claims. While there may be lessened tissue inhibition there is likewise indisputable increased epithelial vitality and proliferative energy, for the cells are able to grow into blood clot which they never do in the process of normal or hyperplastic regeneration. Wolbach adduced further evidence of the increased proliferative ability of a typical epithelium.

Epithelial cancers of the skin in general have been grouped as follows by McDonagh (quoted by Stelwagon):

- Epidermis—
  - Prickle cell
  - Mixed
  - Basal cell
- Appendicular—
  - Trichocarcinoma
  - Syringocystadenoma
  - Sebaceous carcinoma
- Mixed—
  - Multiple rodent ulcer
  - Epithelioma adenoids cysticum

There has been some controversy over the name "basal cell" as applied to the carcinoma under consideration in view of the fact that "prickle cell" carcinoma also arises from the

basal layer of the epidermis (Hansemann, quoted by Ewing). Krompecher has advanced the term "basaliome" to cover all tumors that arise from the basal layer of the rete malpighii, but acceptance is still in the balance. The relation between basal cell and prickle cell cancer of the skin is as yet incompletely understood. While they both arise from the same place, their histologic and clinical courses are so dissimilar as to force one to the view that they are quite distinct entities. Lately an effort has been made to establish intermediary forms, begun perhaps as early as 1879 by the Fox brothers (quoted by Montgomery) who recognized transitional forms. According to Montgomery, who is the outstanding advocate of "basal-prickle-cell" carcinoma in this country, Clairmont and Korble divided skin cancer into the three types. Engman noted the occurrence of transitional forms and stated that basal cell changed into prickle cell cancer at times. Broders recognized types that were hard to localize in a dichotomous division in his statistical study of 1919. He determined it for his purposes on the basis of predominance of cell type. Darier and Ferrand in 1922 emphasized the occurrence of transitional forms, and between pure basal cell and pure prickle cell types they described "l'épithéliome métatypique mixte" and "l'épithéliome métatypique intermédiaire." The concept has by no means been accepted in view of the remarkable distinction pathologically and clinically between the two types. It is recognized that certain inadequate treatments of a basal cell cancer can convert it into the prickle cell type. Sutton says, "Why should two growths so absolutely dissimilar in their actions unite to form a third? In nearly all of Montgomery's cases, there was preceding X-ray treatment. And some of his tumors closely resemble X-ray carcinomata to me. In these days, and particularly in urban districts, it is hard to find a long-standing case of cancer that has not been X-rayed. Montgomery's contribution is a classical one, but personally I feel that the evidence is insufficient to prove his point."

Basal cell cancer is seen under the microscope to consist of rather thick strands or round and acorn-shaped masses of cells lying in dilated lymph vessels or tissue spaces. Their connection with the epidermis is seen in favorable sections, and the cell type changes from the normal to the neoplastic by insensible gradations. The cells are small, polyhedral, or spindle-shaped by compression. Their nuclei are large and vesicular, the cytoplasm relatively scant, the cell border not so distinct

as in the prickle cell type of cancer, and there are no spines. Large masses of cells show central retrograde change, with mucinous degeneration or the formation of intracellular, eosinophil hyaloid, not microchemically identical with keratohyalin. There is centrifugal compression about the site of proliferation, the overlying epidermis is stretched, thinned, and loses its papillae. The union of the neoplasm with the epidermis is frequently by means of several processes so that there appears to be a downgrowth from several regions of the surface. The neoplasm cells stain darker, with hematoxylin and eosin, than the normal ones. They contract considerably from the space in which they lie when they were fixed. Adenoid groupings in the agglomerates sometimes are seen. The cell masses extend, early, slightly below the subpapillary layer of the corium making little progress into the deeper, firmer tissues. Outrunning strands of neoplastic cells may be seen in superficial lymph spaces at the periphery of the lesion. The corium shows breaking-up of the elastic tissue and tends to fibrose; frequently the connective tissue surrounding a cell nest is hyaline in character. There is more or less infiltration of lymphocytes and plasma cells, which has been interpreted as having a certain protective significance.

Rarely, giant cells are seen engulfing remains of necrotic tumor cells. With ulceration and secondary infection there is superimposed the pathology of bacterial inflammation. The region becomes pervaded with polymorphonuclear leukocytes and a crust composed of fibrin, pus cells, blood and bacteria, covers the area of surface loss. Sometimes under the influence of X-ray, and occasionally spontaneously, according to Montgomery, a prickle cell metaplasia is observed. The cells become larger by an increase in cytoplasm, which is rather eosinophilic; intracellular bridges are seen; and the formation of true keratohyalin takes place in the central portion of the epithelial plugs. When this occurs the course becomes that of the malignant process, with relative insensitiveness to irradiation, rapid growth, swift metastases and much destruction. The curative effect of the X-ray however produces increase in the fibrosis and hyalinization. The tumor cells contract, there is a tendency toward karyolysis, and destruction and atrophy of the cancer cells which are then engulfed by phagocytes and giant cells take place.

*Diagnosis.*—Stelwagon says, very aptly, that "Diagnosis is a species of guesswork based upon certain premises." Experience has the advantage. But there is relatively little guess-

work in the recognition of basal cell cancer, if one keeps in mind the histopathological picture. Differentiation from prickle cell cancer is rather delicate, particularly for the beginner, and in case of doubt it is the correct principle to assume in choosing the treatment that the case at hand is the malignant variety.

Basal cell cancer is to be differentiated from prickle cell cancer, the nodular ulcerating syphiloderm, lupus vulgaris, lupus erythematosus, benign warty-looking formations, blastomycosis, actinomycosis, epithelial hyperplasia at the edge of a chronic non-neoplastic ulcer, and Delhi boil.

The features characteristic of basal cell cancer are:

Age of the patient, always in the adult period, and usually in the later part of it.

A single lesion, usually.

A beginning in a wart, mole, nodule, or scurfy spot.

The pearly roll-like, elevated border, or hard, elevated infiltration.

Scant viscid discharge, frequently bloody.

Slow progressive growth.

A situation on the face, nearly always about the nose or eyelids.

Absence of lymph gland involvement.

A harsh, dry type of skin, such as is predisposed to the lesion.

Biopsy.

Prickle cell cancer usually is situated at a mucocutaneous junction, as upon the lip or at the nares. Its growth is much more rapid. It involves the regional lymph nodes early. There is more abundant discharge and crusting. Biopsy is the surest diagnostic feature, showing the typical pearl formation and the intracellular bridges.

The nodular, ulcerating syphiloderm while frequently on the face is usually multiple. It is rarely rounded but is rather segmental or irregularly circinate. Nodules that have not ulcerated frequently are associated with the ulcerative lesion. These show a disposition to a circular, serpiginous configuration. There is free discharge, usually distinctly purulent. There is general adenopathy and other evidence of lues. The blood test is positive and the lesion undergoes rapid involution upon specific treatment. It is relatively painless.

Lupus vulgaris is slow and progressive but usually begins early, before the age of 20. It shows peripheral "apple-butter nodules" on diascopy. The scar is hypertrophic and there is frequent reappearance in a previously healed portion. The lesion is soft, with shallow ulceration and soft dark-red or red-brown borders. Its early appearance is of deep-seated pinhead to pea-sized papules or macules, crowded and



aggregated. It may take years to reach the size of 1 to 2 inches in diameter. The tuberculous diathesis is a likely accompaniment.

Lupus erythematosus presents macular or slightly elevated, dry pinkish or reddish patches, covered with small, grayish, adherent scales. It is usually on the face, very often with a peculiar butterfly shaped configuration involving the malar eminences and the bridge of the nose. The central zone shows atrophy and dilated follicular openings, and the inflammation is particularly at the periphery.

Benign warty-looking formations and fleshy moles are differentiated by their history, course, and absence of tendency to crust, break down, or ulcerate. But if the lesion has fissures it should be considered an early carcinoma. On the lip, a local thickening or abrasion, particularly in an individual of forty or more years, means cancer, usually.

Blastomycosis develops relatively rapidly from the early papulopustular stage. The lesions gradually enlarge and crusting is present almost from the beginning. On removal of the rough scaly covering the lesion is seen to consist of reddish or purplish irregular papillomatous tumors. There is a tendency to heal in the center with whitish atrophic scars, and to extend peripherally. The finding of the fungus in the seropurulent discharge is pathognomonic.

Actinomycosis produces nodular infiltrated lesions that tend to form abscesses and sinus tracts. The purulent discharge contains the pathognomonic "sulfur granules."

Epithelial hyperplasia at the border of a chronic ulceration of known origin may very accurately both clinically and histopathologically simulate cancer. Weidman insists that the histologic picture cannot of itself be differentiated; only the clinical course will serve to do so in doubtful cases. In the pathologic specimen, paucity of mitoses and failure of the epithelial strands to dip deeper than the coil glands indicate that the hyperplasia has not passed normal limits.

Delhi boil occurs in certain endemic regions exclusively. It develops from two weeks to five months after inoculation, assuming the form of a small nodule which undergoes central necrosis on attaining about the size of a pea. A crust forms, which when removed discloses a superficial, sharply-defined ulcer. In the course of several weeks or months healing takes place spontaneously. The course, geographic considerations, and demonstration of the *Leishmania tropica* are diagnostic.

*Prognosis.*—Sutton says, "The outlook in this variety of cancer is more favorable than in any other form of malignant growth. If neg-

lected, however, the malady may give rise to great deformity, particularly if the nose or the eyelids be the part involved." The growth has frequently been compared with a nevus, and there is evidence that it has in common with the nevus an autogeny upon the basis of anomalous development. It does not metastasize and so in all but the profoundly neglected instances is removable in its entirety, a procedure which is of course an infallible cure. When incompletely removed by surgical, physical, or chemical methods, it will recur; and as a rule the recurrence is more rapidly growing than the original tumor. In certain locations, notably at the inner canthus of the eye it is more stubborn than elsewhere. Histologically the prognosis is based upon the cell type,—for about 15 to 20 per cent according to Montgomery show some prickle cell admixture,—and upon the reaction in the corium. Parkhurst finds that an infiltration of plasma cells predominantly accompanies hyaline degeneration of the connective tissue, and Powell has shown that fibrosis and cellular infiltration seem to be defensive factors and are associated with increased length of postoperative life. Tumors of the mixed type are more resistant to radiotherapy than those that show no metaplasia. Fabre-Domergue in 1898 showed that the malignancy of epithelial cancers depends more upon the structure than the location. Hazen in 1916 said that he and MacKee got 95 per cent cures with the X-ray, and in 1917 he stated that competent surgery should secure at least 95 per cent cures. Sweitzer in a report of 43 cases claimed 34 cured, 4 probably cured, 2 helped, 2 recurrences; and one tumor was definitely stimulated. MacKee reported in 1919 a large series of cases in which 158 who were observed for periods of from six months to five years, 85 per cent were cured and 15 per cent recurred. He used X-ray and radium. Broders showed that in his series, of which 75 per cent had been previously treated with acids, surgery, carbon dioxide snow etc., those that had not been previously treated did better under his care than those that had. Stelwagon says the determining factors in arriving at a prognostic decision are: cell type, extent, duration, and rapidity of progress. Rodent ulcer may not kill in thirty years. The earlier it is attacked the more easily will it disappear, and by treating the lesions from which the tumor so often develops its incidence in the full blown form would be distinctly diminished.

All told, only gross neglect should ever be the cause of death from rodent ulcer. Only in the neglected cases is there much disfigurement. In the less extensive cases, radiotherapy frequently cures the disorder leaving

an almost indistinguishable scar. Many of the precancerous lesions are done away with, no mark whatsoever remaining in their place.

*Treatment.*—The subject of treatment may be divided into prophylactic, palliative, and curative.

Prophylactic treatment consists in removing such lesions as have been so many times observed to presage the development of the tumor. Warts, moles, scaly patches, senile keratoses and the like should not be allowed to remain on the face of a person over forty years of age. This is particularly true if the individual leads an outdoor life, or has a dry, harsh type of skin, or is already under treatment for a cancer of the skin. Perhaps persons of the recognizable constitutional predisposition should be advised against undue exposure to the sun and the elements, in the hope of discouraging the formation of the precancerous lesions. Molesworth in this connection advocates the wearing of wide-brimmed straw hats for all laborers in the fields of Australia.

Palliative treatment should never have to be resorted to. The malady if attacked early is curable. X-ray in the most advanced cases offers the only hope and occasionally astonishing results have been secured. Most extensive lesions have been "sterilized" with respect to the tumor cells by means of irradiation and the field is then clear for plastic surgery.

The curative treatment has for its primary purpose the complete eradication of the cancer cells. Secondly, it aims at a good cosmetic result. Cutting, burning, caustic, curetting, and irradiation methods all have their place. In general, only the far advanced instances require the knife. Cauterization undoubtedly destroys the tumor but its effects are rarely cosmetically pleasing. A small lesion may, however, be burned out and the scar reduced to a negligible quantity by the skillful application of radium. Caustics of various kinds have been advocated, such as arsenious acid, potassium hydroxide, trichloroacetic acid, acid nitrate of mercury, pyrogallol, zinc sulphate. Irradiation methods by X-ray and radium are beyond a doubt the most favored in the recent literature.

Valdemar Bie in 1900 reported a distinct failure of the Finsen light as a method of treating basal cell cancer.

Stelwagon permits the use of caustics only on the small circumscribed, slow-growing, superficial cases of skin cancer. He says that pyrogallol tends to spare the normal tissues, as do arsenic and acid nitrate of mercury. A 65 per cent arsenical paste applied for 12 to 36

hours will result in considerable inflammation, pain, and edema; the affected tissue sloughs slowly. Acid nitrate of mercury, fully discussed by Sherwell, is relatively selective in its action. One uses local anesthesia, cures deeply and thoroughly, secures hemostasis with cocaine and adrenalin packs, and applies the coagulant with a cotton applicator. It is left in situ for 5 to 20 minutes, then neutralized. The resulting crust is at first yellow. It turns black, is dry, and sloughs in about three weeks. Roberts advocates trichloroacetic acid which he feels is superior to other caustics in that the coagulum is not hydrophilic, and the treated neoplasm becomes a solid block of dead tissue which sloughs in approximately three weeks.

Stevens describes electrothermic methods: "If treated before metastasis by electrothermic methods and radiation therapy, almost 100 per cent of skin malignancies except melanotic sarcoma can be successfully eradicated." Basal cell cancer is easily destroyed by dessication or electrocoagulation. The tumor may become malignant if the treatment is not thorough. Electrothermy destroys the malignancy before removing it, which is an enormous advantage over surgery. Furthermore, the electrode is cold at all times, and healing is rapid.

With rodent ulcers near the eye Cope advocates surgery. While carbon dioxide snow, or radium, or even X-ray, may work, "none is so speedy or efficient as excision." He removes the lesion with about one half inch margin surrounding it and puts in a skin graft, using a mold of modelling clay so as to obtain equal pressure on all parts. A dressing is applied and left in place for ten days, after which time it may be removed and the result viewed.

Surgical removal is unsafe, according to Engman and Kimbrough, because of the danger of implantation. Incomplete removal means recurrence, and this is usually more virulent than the original. In far advanced cases, X-ray will kill the neoplastic cells, Pirie states, and plastic surgery will repair the damage giving quite often an excellent end-result. Hazen says, "Competent surgery should cure 95 per cent."

Stenbeck, of Stockholm, (quoted by MacKee) was the first to report a case treated by the X-ray. He reported it before the Swedish Medical Society on Dec. 19, 1899. Marcuse in 1896 first called attention to the dangers of exposure to X-ray in causing alopecia and dermatitis that "resembles sunburn." Ideally, a single X-radiation doing all the work is to be desired, Pirie says, but often it requires several exposures. Nodules at the edge of an ap-



parently healed rodent ulcer indicate that some portion of the neoplasm still remains. Engman and Kimbrough likewise find that there is frequent recurrence at the edge of the scar under X-ray treatment, and because of the danger of X-ray burns radium is to be preferred. Its stability, exact dosage, the absolute control of its energy, and the measuring of it, as well as the strong reaction lasting several days combined with the primary destructive effect, render it both safer and more affective than X-ray. There is no danger of a burn when one controls simply the time, distance, and screen according to the dictates of judgment and experience. Chemicals are much too uncertain in the extent of their action. Boggs states that radium prevents metastases by sclerosing the lymph system, inhibits proliferation by its action upon the nuclei, and leaves very little scar,—enormous advantages over the wholesale excisions that were practiced up till about 1916. MacKee in a series of 222 cases treated by X-rays and radium obtained 201 clinical cures; 15 were benefited. Those near the inner canthus of the eye were much more resistant to irradiation than tumors located elsewhere. Sweitzer in a series of 43 cases treated solely by radium reported 34 cured, 4 probably cured, 2 helped, 2 recurrences; and one growth was distinctly stimulated. Abbe in 1906 observed that radium is applicable in locations inaccessible to X-ray, and that certain tumors resistant to X-ray are cured by radium. According to Muir in 1928, radium is equalling the results of the best surgery in the treatment of skin cancer and the advantage to the patient is great. Stelwagon prefers X-ray given in one massive dose rather than repeatedly. It dries up and shrinks the ulcerated area.

For details of X-ray and radium in the treatment of disease of the skin the reader is referred to the book of that title by MacKee, which is full, detailed and authoritative.

*Summary.*—"Rodent ulcer" is an inaccurate and unscientific term; it should be discarded. The correct, specific appellation, based upon the histopathology should be substituted.

In addition to the accepted predisposing factors in the etiology of basal cell cancer, which are (1) late adult age, (2) exposure to sunlight, chemicals, irritants, etc., (3) predominance in the male, (4) and preexisting lesion, a fifth factor is suggested: a constitutional predisposition in the form of epidermal hypoevolutionism.

Treatment consists in the extinction of the neoplastic cells, preferably in a manner conducive to good cosmetic results. Irradiation is

the method of choice, and of the two possibilities, X-ray and radium, the latter is to be preferred in view of its safety which is due to the accuracy with which the dose may be applied and controlled.

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## NONCALCULUS OBSTRUCTION OF UPPER URINARY TRACT

A FURTHER STUDY\*

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For some time I have been extremely interested in the noncalculus obstructions of the upper urinary tract and, as it would seem equally as interesting to those not doing

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urology as a specialty, I have given this Association on a previous occasion, and many county societies, the benefit of my experience. Within the past three or four years some new conditions have been recognized and new methods of treatment devised, hence this presentation and the selection of the title.

Not so many years ago, when a plain X-ray picture did not disclose a stone shadow in the region of the kidney or along the course of the ureter, the urinary system was excluded as a site of the trouble complained of. The shrewd Howard A. Kelly first called attention to ureteral stricture (1902), but it was nearly forgotten until that other untiring worker, Guy L. Hunner, several years later earnestly took up the work.

Hunner's extreme enthusiasm can be understood by any one who has done any of the work and is acquainted with Hunner's clinic, consisting almost entirely of women. I can visualize him working for years with women who had undergone from one to four operations, some of which he possibly had performed, with no relief from their symptoms and then find relief following instrumental dilatation of the ureter. We cannot wonder at his enthusiasm. Volumes have been written on the subject within the past few years and a close review reveals that a very high percentage of the articles pertains to ureteral strictures and resultant kinks.

That other conditions outside of the ureteral lumen exist and are associated with the same symptoms, and in many instances the same cystoscopic and roentgenographic findings, I expect to show. We have found that the ureterovesical opening alone is in many instances the cause of the trouble. Simple meatotomy with the high frequency ureteral meatome, which I devised, affords relief when all other findings have been clear and negative. Experience has taught us to make a provisional diagnosis of nothing more than upper urinary tract obstruction until complete, and if necessary repeated examinations are made. It was at first thought that ureteral stricture occurred almost entirely in women, the result no doubt of Hunner's work and reports. However, we know that a great number occur in men and no age is immune.

Infection within the urinary organs or distal focal infections are causative factors. Just to what extent focal infections play a part is yet undetermined. Congenital defects are unquestionably a factor. It may also be part of the price we pay for assum-

ing the upright position. Trauma has contributed its quota in many instances. The close proximity of the ureter to the genital organs in both sexes is an important factor. Lues should never be overlooked. In three of our cases, two females and one male, lues was the only causative factor located. Improvement was shown after antiluetic treatment had been administered.

Pain is the most important symptom. It may vary from a dull ache to the most excruciating attack. It may be localized or distributed along the entire course of the ureter and referred to the scapular region or downward into the bladder, scrotum or thigh. It is usually associated with hyperesthesia of the thigh, recently described by Campbell. Hematuria may be mild or marked and while it usually follows an attack of pain that is not by any means a fixed rule for it may precede the pain. Urinary disturbance depends somewhat on the location of the obstruction; if in the lower third of the ureter it is generally present. Infection in the urine is usually associated with variable bladder disturbances regardless of the obstruction and location. General reactions depend on the extent of the obstruction and amount of existing infection. Some of our cases, however, have shown marked blood nitrogen retention and temperature reactions when only moderate partial obstruction could be demonstrated. Associated gastro-intestinal symptoms are very deceptive and may vary from slight nausea and vomiting to the most profound constipation and associated gaseous distention.

Such gastro-intestinal symptoms, frequently accompanied by an anemia which may simulate jaundice, are no doubt the reason why so many of these patients have had previous abdominal operations. This is particularly true of the right side pain. It is interesting to note that at least one of our cases had a previous diagnosis of transposed viscera and appendicitis.

It is not always a simple matter to form conclusions which bring about a correct diagnosis; one so enthusiastic is apt to pronounce all obscure abdominal pains, and many of the acute ones, due to ureteral obstruction unless he utilizes everything at his disposal to do a complete urological examination. It has been a great source of satisfaction and relief to have the cooperation of competent medical and surgical departments such as exist at St. Anthony's Hospital where most of our work has been carried out.



Our routine examination includes careful inspection and palpation of the kidneys, ureters and external genitalia, urine and blood analyses; cystoscopic examination, observing the ureteral openings, and passing, if possible, No. 6 or 7 whistle tip ureteral catheter, noting the urine flow, approximate capacity of the pelvis, appearance time and total output of the dye. A pyclogram of one or both sides is then taken with the patient in prone position, and a ureterogram of one or both sides in a sitting position. We feel that a summary of the ureteral urine findings, dye output and a careful study of the skiagraphs give us more information than the hang of a bulb. It also shows kidney mobility and establishes a permanent record. Reproduction of the pain at time of injecting the pelvis further serves to clinch the diagnosis. Many of our patients have said without solicitation from us when the catheter meets with obstruction or the pelvis is distended, "that is the pain." The time required for a normal pelvis to empty after having been filled and the catheter withdrawn, as determined by Goldstein and others, is 1 cc. per minute. This is a very valuable sign but it is reasonable to assume that in the early partial obstructions the pelvis is hypertonic and may possibly empty more readily than normally or than at a later date when it has lost tonicity. It has been one of our observations.



Fig. 1. Drawing of kidney delivered through incision showing vessels attached to lower pole blocking the ureter.



Fig. 2. Pyclogram of Case 2 as shown in Fig. 1.

To effect relief it is of course necessary to remove the obstruction and removal of the cause if it can be found. This can be better described with less consumption of time and space in the following case histories:

#### REPORT OF CASES

Case 1. White female, aged 34, teacher. First consultation April 18, 1924. Chief complaint is pain over left kidney at all times, occasionally very acute, radiating to the bladder and left thigh, associated with frequent urination, nausea, vomiting and loss of weight. Onset dated from a fall down steps two years previously. There was tenderness over left kidney; urine was clear and normal and the differential functions were normal and equal. The only positive finding was a curve in the left ureterogram just below the ureteropelvic juncture which did not yield to dilatations. Consultation with the medical and orthopedic departments was of no assistance. As a last resort the kidney was exposed August 1, 1924, when the ureter was found definitely adhered to the lower pole of the kidney. The adhesions were freed and the kidney fixed but not elevated. There has been no further similar trouble. The patient immediately gained weight and was relieved of the gastro-intestinal symptoms.

Case 2. White female, aged 27, housewife. For seventeen years had attacks of pain in the left upper back which occurred when in the upright position and could be relieved by lying prone on left side. There were no urinary symptoms but definite nausea and vomiting during the attack. No chills and no fever. On examination, March 19, 1929, there was moderate tenderness over the left kidney, which was palpable through a very thin abdominal wall. The urine was cloudy with pus and *B. coli*. Right kidney urine normal with a 50 per cent dye output for one hour. The left ureter catheter



Fig. 3. Movable kidney and definite kink at the uretero-pelvic juncture. Pelvis is moderately distorted.

drained very cloudy urine in large quantity containing pus and *B. coli*. There was no dye output. Left pyelo-ureterogram showed a typical pyonephrosis with no definite kinks or strictures. At operation, March 25, 1929, the left kidney was found soft and flabby; an aberrant artery and vein were attached to the lower pole in such way as to completely block the ureter at juncture with the pelvis. There was no constriction of the lumen. The kidney was beyond repair and consequently removed.

This is the fifth case of extrarenal vessels which we have encountered at operation, four of the lower pole and one of the upper. Those of the upper pole are naturally of no consequence symptomatically but those of the lower are frequently the cause of ureteral obstruction. Division of the vessels to relieve the obstruction may be followed by atrophy of that part of the kidney supplied by the vessels divided.

Case 3. White female, aged 43. About three years ago she had attack of pain over both kidney regions associated with dysuria. She was examined in another hospital and a diagnosis of polycystic kidney made, but no treatment outlined. The pain continued more or less constant and in definite sharp attacks until October, 1928, when she passed blood in the urine and became bedfast as result of pain. Examination, November 1, 1928, both kidneys palpable, the right much larger than the left. Urine cloudy with pus but contained no bacteria. At cystoscopy the left catheter passed readily and drained freely. The left urine was clear, free from pus and infection, and the P. S. P. output 25 per cent. Right catheter passed only a short distance and met with complete obstruction. There was moderate drainage

of cloudy urine containing pus but no bacteria. The P. S. P. output was 5 per cent. A few days later a catheter was forced to right pelvis when a large quantity of urine drained away. An indwelling right catheter for forty eight hours afforded some relief. Both pyelograms were typical of polycystic kidney, with considerable dilatation of the right. November 24, 1928, the right kidney was exposed and many superficial and deep cysts opened and drained until the kidney had reduced at least one half. There were numerous inflammatory adhesions around the ureter at level of lower pole of kidney which were freed. Postoperative recovery was uneventful and the patient has had no further symptoms.

This is essentially a bilateral condition in which nephrectomy is contraindicated though the symptoms may be unilateral. We feel the operation performed in this case is the choice of last resort and affords at least temporary relief.

Case 4. White female, aged 25. Had diagnosis of movable kidney by a physician in Germany a short while before emigrating to America. The chief complaints were constant, dull to sharp pain in right back, radiating forward to bladder, associated with frequent urination, loss of appetite, eructations of gas, constipation and dull headache. She finally became bedfast. The urine was clear and the entire urological examination was negative and clear except for suggestion of a kink at right ureteropelvic juncture. Dilatation by means of No. 11 Garceau catheter and retained ureteral catheter did not afford relief. February 14, 1929, the right kidney was exposed and found in normal location but surrounded with dense adhesions which also involved the ureter. The adhesions were freed and the kidney



Fig. 4. Skiagraph showing angulation of sclerosed artery which encroached upon the ureter as described in Case 8.



anchored with No. 3 forty day catgut to the twelfth rib. Recovery was uneventful and the patient has since been free of symptoms and able to perform the duties of a nurse.

This case naturally suggests a psychic change following the operation. The more I study the case the more I am convinced the adhesions around the ureter were the cause of the trouble.

Case 5. White male, aged 20. History of urethral discharge two years ago, and since then frequent urination with burning. For the past year the left knee has been swollen, and for the past two months a swollen left inguinal gland. The afternoon temperature ranged from normal to 100 F. R.B.C. 3,900,000, W.B.C. 4,200. Small lymphs 14 per cent, large lymphs 26 per cent, polymorphs 60 per cent. Non-protein nitrogen 50 mg., uric acid 3.7 mg. per 100 cc. or blood. Total P.S.P. output 15 per cent for two hours. The bladder urine was almost clear and contained some blood cells and one or two pus cells per high power field. There were no acid-fast or other microorganisms. At cystoscopy the bladder was found contracted. Right catheter passed and drained freely; the specimen showed no pus or bacteria. This kidney was doing all of the function. Around the left opening there were two or three small ulcers and the catheter passed only a short distance; there was no drainage. A provisional diagnosis of autonephrectomy of tuberculous origin was confirmed at operation, March 21, 1929, when a large tuberculous pyonephrotic left kidney was removed. The patient returned home in regular course of time and the progress has been satisfactory.

Complete obstruction of the ureter is frequently free from pain as this case demonstrates.

Case 6. White female, aged 43. For some years has had dull to sharp attacks of pain in left back, not referred and associated with no other symptoms. She has been examined by many physicians in America and Europe. January, 1926, I examined her and found bilateral irregular pyelograms which were nearer the spine than normal. There was a suggestion of left ureter constriction on a level with the lower pole of the kidney. There were no stone shadows. Relief followed a few ureteral dilatations and the patient was much improved generally. Two years later the urine became cloudy with pus and *B. coli* and could not be cleared. Some months later a skiagraph showed a stone shadow high up in the left pelvis and some indefinite shadows in each pole. At operation April 19, 1929, a horseshoe kidney was encountered and the stone removed through a nephrotomy incision. As the patient did not do well under the anesthetic, it was not definitely ascertained as to the consistency of the other shadows. The patient made an uneventful recovery and left the hospital nineteen days after operation.

This demonstrates the importance of observation and reexamination, if necessary, of

many of the ureteral stricture cases. The incidence of horseshoe kidney is interesting.

Case 7. White male, aged 55. Two days before first consultation, January 16, 1929, he developed dull pain in the left lower abdominal quadrant which gradually became acute and sharply localized. It did not radiate; there were no associated urinary or gastro-intestinal symptoms and no relief after voiding or bowel movements. On admission to the hospital the temperature was 99.4 F. and the leukocyte count 16,900 with 85 per cent polynuclear neutrophils. There was a definite circumscribed point of tenderness on the left side just below a line drawn from umbilicus to the spine of the ilium. Rigidity was not marked. There was some tenderness to deep pressure over the left costovertebral angle. A plain picture showed a round shadow at the region of the tenderness. Cystoscopy January 17, 1929, gave absolutely negative findings, except when the left ureteral catheter passed up the lower third of ureter he experienced a sharp pain followed by immediate relief of the pain complained of. Two days later he left the hospital and so far as we know has had no further trouble. The shadow previously observed was found just outside the ureter and was pronounced a phlebolith.

Phleboliths, or vein stones, are the result of inflammatory changes in the vein. It is reasonable to assume that such conditions occasionally involve the ureter externally and that the shadows are not so innocent as they may seem. A rigid catheter or other ureteral instrument serves to pull the ureter away from the inflamed area and dilate the lumen.

Case 8. White male, aged 55, merchant. Late in October, 1928, while walking, developed severe pain over lower left quadrant of abdomen radiating to left back and to left testicle, associated with moderate dysuria but no gastro-intestinal symptoms. There were no chills or fever. The attack was relieved with morphine. A few days later a similar attack when he entered the hospital November 2, 1928. At this time there was marked constipation. A plain picture showed a suspicious shadow over the lower third of left ureter. Attention and relief of constipation afforded no relief from the pain. Cystoscopy November 6, 1928. The posterior urethra was tight and spasmodic. The prostate was normal. A No. 6 catheter passed readily up left ureter and drained normally. The specimen was negative and the function normal. The skiagraph showed the left catheter adjacent to the shadow previously observed, but upon close inspection the shadow was found to be the angulation of a large sclerosed artery which evidently encroached upon the ureter. A similar sclerosis existed on the right side but there was no angulation of the vessel. There was relief following the first cystoscopy for forty-eight hours when he again developed a sudden attack. A large catheter was then passed up the ureter and left in place for forty-eight hours. This afforded relief which has continued except that when the



Fig. 5. Author's high frequency fulgurating ureteral meatome.

ureter is dilated he has return of the symptoms in a mild way for a short time.

I have been unable to find a parallel case reported in the literature. We feel certain of the diagnosis and believe the observation original.

Case 9. White male, aged 41, gas station manager. January 26, 1929, developed sudden severe pain right lower abdominal quadrant which radiated to right back, the right testicle and thigh. There was moderate urinary frequency but no associated gastro-intestinal symptoms except slight nausea. There was marked tenderness over McBurney's point. The temperature was normal, leukocyte count 12,800, 85 per cent polymorphs. Appendicitis was strongly, and possibly justly, suspected and operation advised. However, another consultant was called who had observed a number of ureteral obstructions and referred the patient to me. A cystoscopic examination was made within a few hours after the initial attack when a definite obstruction was found in the lower third of the right ureter. A No. 4 catheter was manipulated through the constriction when a great deal of urine was drained from the pelvis containing few pus cells and few bacilli resembling *B. coli*. The catheter was retained in place for forty-eight hours and later the ureter was dilated sufficiently to afford complete relief.

This case requires no further comment. He represents a large number who have been subjected to abdominal operations without relief.

Case 10. White female, aged 30, secretary. About January 14, 1927, developed severe pain in the right mid-abdominal region, radiating to the right back and to the bladder and right thigh, associated with moderate dysuria and marked nausea, vomiting and constipation. There were no chills and no fever. The pain was sharp, constant and required morphine for relief. The bladder urine contained few pus cells and few *B. coli*. At cystoscopy No. 6 catheter passed to pelvis, but the right met with obstruction in the middle third of the ureter and required some manipulation to pass. The right catheter drained with signs of retention. The specimen was clear and free from infection; the function was normal. The condition proved to be ureteral stricture which yielded readily to dilatation with increasing sized catheters. As she was the daughter of a physician she was only advised to have examination for possible foci elsewhere in the body. Exactly two years later she returned with a similar condition on the left side though the nausea, vomiting and constipation were more pronounced. Relief was not effected so readily as previously and it required retained ureteral catheters at different times on left side for relief. There was staphylococcus infection in the bladder but no infection in the kidneys. In the course of the manipulations, however, the left kidney became infected. It cleared up after relief of the stricture.

A great many cases of ureteral stricture are bilateral. It is often difficult to demonstrate the stricture and the patient is relieved after dilating the ureter. This is a typical case and represents a high percentage of patients on whom we have conscientiously made the diagnosis of ureteral obstruction.

And so we could continue outlining case after case, or tabulate charts of numerous symptoms associated with equally as numerous findings in the many patients which it has been our privilege to see, and after examination and observation had come to a final diagnosis of noncalculus ureteral obstruction. From our work and the few foregoing related case histories, we feel justified in drawing the following conclusions:

1. Obstruction of the upper urinary tract may be located anywhere from a calix to the ureterovesical opening.

2. The actual pathology may be located within the lumen of the drainage canal, or it may lie outside of the canal and produce pressure upon it.

3. Constrictions within the lumen may be the result of a previous or existing infection, or may follow the passage of a stone. No definite cause can be found in many instances.

4. Atresia of the ureterovesical opening, congenital or acquired, is frequently the only lesion found. Incision and enlargement with the high frequency meatome affords relief.

5. There are many conditions outside the ureter which may affect it reflexly or by direct pressure. Probably the most constant and frequent of these are infections in the genital organs; salpingo-ovaritis in the female and vesiculo-prostatitis in the male.

6. Finally, the treatment consists of restoration of function by the establishment of complete drainage. If within the ureter this is accomplished by dilating the lumen with increasing size catheters or bulbs, or indwelling ureteral catheters. It is often necessary to resort to operation to incise a meatus, a stricture in the ureter, anchor or even sacrifice a kidney. If outside the lumen the cause must be searched for and removed, preserving the kidney if possible.

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## SEROLOGIC TESTS IN THE SERUM DIAGNOSIS OF SYPHILIS\*

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There are numerous modifications of the original Bordet-Wassermann reaction and scores of precipitation tests at the present time. Every public health laboratory and every other diagnostic laboratory is confronted with the problem of selecting a serologic test which will give the greatest efficiency and possesses economic as well as diagnostic merit. Individual

laboratories cannot attempt to determine which test is the best. They must depend upon the experience of their serologists.

The merits or demerits of serologic tests are determined usually through the experience of a large number of workers in several laboratories. A new test is compared with the method in use in a particular laboratory or by testing the sera of a large group of individuals and comparing the results with known clinical data. One of the best methods of evaluating tests is by testing parts of identical sera in several laboratories using similar methods, or the method being used as a matter of routine. Two important comparative studies of this nature will be discussed, one undertaken through the leadership of Dr. Ruth Gilbert in this country, and the other the work undertaken by the League of Nations' Health Section at Copenhagen in 1928.

In October, 1924, Dr. Ruth Gilbert, of the New York State Department of Health, presented before the American Public Health Association at Detroit an outline of plans for the standardization of the Wassermann test.<sup>1</sup> Three main problems were proposed: First, the selection of a suitable antigen; second, the determination of the most favorable quantitative adjustment of serum, antigen and complement, and third, the determination of the optimum temperature and period of fixation.

In 1925 work was begun on the problem of selecting a suitable antigen.<sup>2</sup> Three of the best antigens were selected (Kolmer's, Bordet and Ruelens', and New York State cholesterolized) and compared parallel with those used routinely in seven representative laboratories. The New York State antigen was found to be more sensitive but not as specific as the Bordet and Kolmer antigens. Results of this work showed that none of these antigens could be considered as a standard. It was decided that a cholesterolized antigen used in conjunction with a noncholesterolized antigen was essential.

In 1926 six laboratories were selected to compare their routine serologic tests on identical sera submitted by the New York State branch laboratory in New York City.<sup>3</sup> Comparative tests were made on 252 specimens from 227 syphilitic patients and 43 from non-syphilitic cases. On only 100 of the 252 specimens did all of the cooperating laboratories agree and on only 36 of the 43 control cases. The type of antigen used did not account for all of the differences as a Bordet noncholesterolized antigen proved more sensitive than several of the cholesterolized antigens used and Kolmer's antigen in his laboratory gave more positives than the same antigen used in other laboratories.

\* From the St. Louis Health Division Laboratories.

The New York Department of Health using a cholesterolized antigen showed the best results in detecting the largest number of cases (147) of syphilis and giving no positive results in the control group. Dr. Kolmer's laboratory came second in sensitivity but three positive reactions were secured in the control group. The Michigan laboratories using only the Kahn test showed the next largest number of positives and it also had no positive reactions in the control group. The Massachusetts laboratories showed the smallest number of positives (41). Dr. Kline's microprecipitation test done at Western Reserve University showed positive reactions in 12 control cases.

This study showed that the most sensitive results in the complement fixation tests were obtained with methods employing cold fixation and a relatively small amount of complement in proportion to the total volume of the test. The least sensitive results were obtained with a method employing water bath fixation at 37°C. and relatively more complement. A carefully standardized cholesterolized antigen was found to be desirable.

In 1927, eight laboratories in New York State, using similar technics and identical antigens, made comparative tests with portions of the same sera.<sup>4</sup> Five of these laboratories also did the Kahn precipitation test on some of these sera. With 134 of the 201 specimens examined uniform results were obtained. In 47 of the 67 disagreeing specimens there was a difference between marked fixation and no fixation. The largest number of positive reactions obtained was 123 and the smallest 88. Positive reactions were secured from 7 of the 53 control cases in one or more of the laboratories.

The results obtained with the Kahn precipitation test in 6 of the laboratories showed almost as much variation as did the results with the complement fixation tests. Fifty-two specimens showed disagreeing reactions and of this number 35 were differences between marked precipitation and no precipitation. In evaluating the variations recorded with the Kahn test in these laboratories it must be remembered that the emphasis was placed on doing the complement fixation tests.

At the second laboratory conference on serodiagnosis of syphilis, held at Copenhagen, May 21 to June 4, 1928, the leading serologists conducted a comparative study of various laboratory methods for the serologic diagnosis of syphilis.<sup>5</sup> Sixteen different countries were represented with each representative executing a precipitation test or a modification of the Bordet-Wassermann reaction in use in the coun-

tries represented. The Kahn reaction was executed by Dr. R. L. Kahn, the representative from the United States and by Dr. Boas, of Denmark.

Out of a total of 944 sera tested by these various methods, 502 were from known cases of syphilis, 7 were from doubtful cases and 435 were from cases diagnosed as being nonsyphilitic. The latter group comprised patients suffering from tuberculosis, cancer, scarlet fever, gonorrhea; and pregnancy; etc.

The work done by the League of Nations' Serologic Conference is very significant as the participants were all expert serologists, all with few exceptions having several years experience with the complement fixation procedure or their particular precipitation test. It is to be expected that the work done by these men embodies greater accuracy than that done by the ordinary serologist. If a test proves unreliable in their hands it is very good evidence that such a test would be unsatisfactory in diagnostic laboratories.

The largest number of positive reactions were secured by Müller with the Müller clotting test. This test gave 317 positive reactions and 45 doubtful reactions from a total of 502 syphilitic cases. In the group of nonsyphilitic cases this test gave one positive reaction and 10 doubtful reactions. The Kahn test as executed by Kahn had the next largest number of positive reactions in the syphilitic group giving 305 positive reactions and 33 doubtful reactions. In the group of nonsyphilitic cases the Kahn test had no positive reactions and 5 doubtful reactions. The Kahn test as conducted by Boas ranks third in sensitiveness by having 294 positive reactions, but it also gave 3 false positive reactions.

Jacobsthal, a pioneer in serologic work, has had several years experience with the complement fixation procedure but still his own modification of the Wassermann test executed by himself gave 29 positive and 36 doubtful reactions in nonsyphilitic cases. At the same time his test showed a decided lack of sensitiveness as he secured only 265 positive reactions in the 502 syphilitic cases. DeBains did little better with his own modification of the Bordet-Wassermann reaction as he secured 26 positive and 4 doubtful reactions in nonsyphilitic cases and secured only 167 positive reactions in the syphilitic group. Otto-Blumenthal secured 24 positive and 40 doubtful reactions in the control group and 260 positives in the syphilitic group.

Of the 7 Wassermann systems used only that used by Harrison-Wyler and Sierakowski gave no positive reactions in the nonsyphilitic group,



but each had a few doubtful reactions in this group. Although these two methods were specific in syphilis, they both lacked a sufficient degree of sensitiveness as Harrison-Wyler secured only 210 and Sierakowski 195 positive reactions in the syphilitic group.

It is of interest to compare the large number of false positive reactions secured by the Bordet-Wassermann tests in comparison to the precipitation tests. The 7 different Bordet-Wassermann reactions gave a total of 98 false positive reactions and 164 false doubtful reactions. In contrast to these tests the 7 precipitation tests gave 23 false positive reactions and 143 false doubtful reactions.

In comparing the Kahn reaction as executed by Dr. Kahn with the Wassermann-Bordet tests and with the other precipitation tests the Kahn test gave no false positive reactions and was second in sensitivity. The Kahn test proved somewhat more specific than the Müller reaction because the latter test gave a definite false positive reaction in a nonsyphilitic case and a fairly large number of false doubtful reactions, ten such reactions in comparison to five by the Kahn test. A serious practical disadvantage of the Müller test is that the antigen can be secured only from a distributing center in Berlin because of difficulties in its preparation, while Kahn antigen can be prepared and standardized by any competent serologist.

#### COMMENT

It is essential that laboratory workers should perform diagnostic tests possessing the highest degree of perfection as determined by comparative studies as outlined. This is necessary as some clinicians construe a positive reaction received from any laboratory as diagnostic of syphilis and a negative report as proof that the patient does not have syphilis. This attitude is unfair because the serologic examination of a patient's serum is only one criterion in the diagnosis of syphilis. Laboratory tests have been designed to aid the clinician and not to shoulder the burden of making a diagnosis.

There are innumerable reasons that account for the erroneous results reported by the serologist. It is not known what causes the binding of complement or the production of precipitate in syphilitic serum. Serologic tests are based on reagents which do not even approach a chemical stability. Beef heart extracts are always a variable factor; guinea pig serum used as complement varies with each individual pig and also from day to day. Different batches of amboceptor vary greatly as

does the daily dilution of cells. These variations are multiplied numerous times when one laboratory is compared to another.

The serologist realizes that the best of tests fail in certain instances. In primary syphilis positive results are not expected in a large per cent of the cases until the second or third week or even longer after the chancre appears. In tertiary and latent syphilis it is expected that at least 25 per cent of the cases will be missed. It is only in secondary syphilis where serologic tests can be considered as efficient. Knowing the shortcomings of serologic tests it is unwise to suggest to the clinician that a particular test, whether complement fixation or precipitation, can always be depended upon. It is better to caution that no test should be interpreted as giving uniformly correct results.

#### CONCLUSIONS

It is evident from a study of the work presented by Dr. Gilbert that it is at present impossible to standardize the Wassermann reaction so that it will give comparable results in all or even in a small group of laboratories. When identical antigen and similar technic are used in different laboratories there are other variable factors which make it impossible to secure identical results.

The work of the League of Nations clearly indicates that the Wassermann test and its modifications executed by the most experienced serologists show a decided degree of nonspecificity and a lack of sensitiveness. In view of this the Conference conservatively "expressed the opinion that the best of the precipitation tests may be regarded as equal in value to the tests of those which depend on fixation of complement (Bordet-Wassermann)."<sup>5</sup>

Commenting on the results obtained by the Kahn test at the League of Nations' Conference, the *Journal of the American Medical Association* states:<sup>6</sup> "The Kahn test evidently stood out in the four criteria for a good method; namely, practicability, specificity, sensitiveness and clear-cut reactions. Only a few years ago this test was looked on with academic interest, the belief being still prevalent that it would be impossible for any test to replace the well established Wassermann test. The wide use which the Kahn test has been attaining in this country and abroad is clearly justified in view of the superior results that it gave at Copenhagen in comparison with other internationally known tests for syphilis. Because of the importance of laboratory tests in the diagnosis and the treatment of syphilis, it was natural that the acceptance of the Kahn test

by clinicians should have been slow. From now on, however, this test will undoubtedly attain still wider use."

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## ANEURYSMS

DIAGNOSIS VERIFIED BY ROENTGEN EXAMINATION, CLINICAL MANIFESTATIONS (AND PATHOLOGY) AND AORTITIS IN GENERAL\*

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From a clinical standpoint the result of involvement of the heart and great vessels by syphilitic infection is more common than clinical symptoms show and in this study of aortic aneurysms it is my opinion that about 80 to 90 per cent represent a complication or end-result of luetic aortitis. This view is generally supported by various authors and in this study we find that the etiology of lues is 100 per cent. Having established the position of this all important disease and its etiologic relation, there remains a brief discussion of symptoms and their relation to diagnosis. Therefore, I will divide the course of the disease into three stages: (1) Aortitis, (2) arch dilatation, (3) sacculated or fusiform aneurysms.

We all agree that other diseases than lues cause aortitis. Arterial sclerosis and streptococcal infection cause atheroma of the arteries which may be the predisposing cause of aneurysm. The pathology demonstrates that syphilis produces a definite and specific type of aortitis, quite distinct from ordinary atheroma, for the pathology of atheroma or dilatation is essentially a process affecting the intima of the aorta leaving the media intact, while in syphilis the spirochete affects the media, primarily producing the weakness of the arterial wall which is recognized in aneurysm formation.

It is a fact that when the heart muscle hypertrophies as a result of increased work, it increases in strength and accomplishes the greater amount of action necessary to compensate the associated myocardial changes. Then the causes that lead to the hypertrophy have a simi-

lar effect in the aorta with its damaged walls and dilatation follows; therefore the aorta being the artery where most pressure is controlled is a causative factor of this condition. It does not imply that all cases are luetic, but in this series of cases 100 per cent were luetic with a positive history of infection, but not all had positive Wassermann reactions.

Aortitis is more common than we suspect. Autopsy statistics show this condition as high as 14.56 per cent. Hubert's 1380 cases showed 15.5 per cent and he states that aortitis comprises 70 per cent of all cases of visceral syphilis. Romberg's private cardiac cases showed aortitis in 26.2 per cent. This is a very high percentage and it is safe to say that syphilitic aortitis occurs in from 4 to 7 per cent of autopsies, which accounts for a large number of cases of heart disease organic in character. In this observation it was found to be 100 per cent; all were colored and at an average age of 45 to 50 years.

The pathological reports of aortitis by Warthin and Brooks are:—Warthin has distinguished the following as being characteristic of syphilitic infection: (1) collections of spirochetes in the myocardium without lesions or symptoms; (2) pale or fatty degeneration of muscle in association with spirochetes; (3) simple atrophy; (4) areas of necrosis; (5) interstitial changes consisting of edema, proliferation and myxoma-like areas. Brooks found in 50 syphilitics that the pericardium was involved in 28, the myocardium in 44 and the coronary arteries in 35. The most frequent myocardial changes were infiltration of small round cells about the arteriole and foci of fibrosis. In five instances there were true gummata.

These observations have served to attract attention to cardiac changes and raised the question of what symptoms, laboratory findings, etc., are to be expected so as to distinguish syphilitic from nonsyphilitic disease, and show the importance of an early diagnosis and the proper treatment to be given.

The prodromal symptoms of angina pectoris, aneurysm of the aorta or mediastinal tumors, with referred pain to left arm and upper chest without changes in pulse rate except increased rate, are hard to distinguish and at times confusing, therefore it is always important to have aneurysm or aortitis in mind with anginal or pressure symptoms.

The early recognition of aortic disease by clinical symptoms is important before manifestation of pain or other signs appear but the prodromal symptoms are rather vague and give no symptoms to direct attention to the heart or aorta. However, the patient com-

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plaints of substernal pain, with or without dyspnea, which may or may not be increased by physical exercise, intense knife-like pain usually located in the upper portion of the sternum or over the precordia, and described by the patient as a feeling of tightness, constriction and a sense of weight on the chest, occasionally radiated to either side of the chest, arms, neck or back and associated with hyperesthesia. These last described symptoms can be differentiated from cardiac, angina pectoris or coronary disease by being more acute in character.

The previous history here is the important consideration. If there is no history of acute infection and arterial changes, lues should always be considered when the objective symptoms and manifestations are roughening over the arch with a to and fro murmur, cardiac insufficiency (may or may not have murmurs), palpitation with irregularity, myocardial changes, tachycardia, indefinite gastric disturbances, nocturnal headaches, and signs of lesser importance. The Wassermann reactions in these cases were not all positive but did not exclude syphilitic infection. The X-ray examination shows beginning dilatation and as the case progresses erosions of bony areas are seen at the seat of disease.

The symptoms arising from such changes are extremely varied and confusing, but with a better knowledge of the functions of the heart a more satisfactory appreciation of the symptom-complex will be a guide to a more satisfactory diagnosis. The changes demonstrated on roentgen ray examination usually confirm the clinical findings; the dullness is increased over the sternum in the first and second intercostal spaces. I will discuss the symptoms briefly as follows: Pain, dyspnea, cough an early symptom usually caused by pressure on the trachea or main bronchus commonly dry



Fig. 1. Case 1. Taken on previous entrance to hospital.

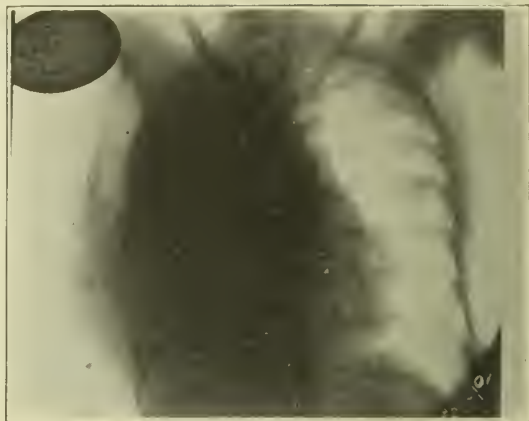


Fig. 2. Case 1. Showing progress of pathology in seventeen months' time.

and irritative and markedly increased on exertion. Hoarseness, especially when caused by paralysis of the vocal cords which shows pressure on the recurrent laryngeal nerve. Pulsating tumors are diagnostic with or without bony prominence, erosion, etc.

On fluoroscopic examination the patient should be exposed in the oblique as well as in the usual anterior-posterior position in order to show a view of the posterior mediastinum (retrocardiac space), which not only shows the tumor but decides the presence or absence of pulsation.

Tracheal tugging was not a common finding in these cases nor was inequality of the pulses observed. While this sign appears most commonly in the radial arteries it may exist in the brachials or carotids where it is caused by the pressure of the aneurysmal sac upon the subclavicular or innominate arteries.

Pupillary changes are supposed to be common, due to sympathetic nerve pressure, but were not generally found in these cases.

I will give a brief discussion of the most important cases, showing the clinical phase of early history, X-ray examination and where the clinical findings and symptoms are manifestly demonstrated.

#### DESCENDING AORTA

Case 1. K. C., female, aged 33, entered hospital July 10, 1923, complaining of severe pain in left side and chest, general hoarseness, shortness of breath and distressing cough. For one year she had a circumscribed swelling on left arm above wrist about the size of a walnut. This swelling disappeared and was soon followed by a lancinating pain between the scapulae which radiated to neck and left arm. Then she noticed a pulsating tumor about the size of a small grapefruit over this area. Family and past history negative and denied gonorrhea or luetic infection. The positive findings were: poorly developed and under nourished female, emaciated, with a look of distress; dyspneic, aphonia, dry, unproductive cough. Pupils equal and react to light and accommodation,



Fig. 3. Case 2. Aortic aneurysm.

cervical glands palpable. Chest showed emaciation, expansion on left side limited. Posteriorly a large, pulsating tumor at the interior angle of the left scapula about the size of a grapefruit. Voice and breath sounds increased over right lung; unable to define findings clearly over left chest on account of heart sounds. Heart showed displacement of apex beat upward and to the right. A to and fro murmur at base and a distinct bruit heard over entire chest synchronous with pulse. Blood pressure average during observation was systolic 80-90, diastolic 60-70; average pulse pressure of 20 with no material change in right or left arm. Urine negative. Blood count normal. Wassermann negative. Tentative diagnosis, aneurysm of descending aorta, confirmed by radiograph examination which showed a dense, pulsating shadow involving the entire left chest, displacing the heart to the right with erosion of 6th to 9th ribs. Patient was made comfortable with morphia and died Oct. 31, 1923, with oral hemorrhage. Postmortem refused.

Case 2. R. H., colored, male, aged 30, chief complaint, productive cough, pain in chest, loss of weight, loss of voice for one year, positive history and laboratory findings. Diagnosis, aneurysm of arch, confirmed by X-ray. Patient failed to improve and died suddenly. Autopsy showed aneurysmal sac at aortic arch, dissecting in character, about the size of an orange, a perforation about the size of a dime through esophagus, stomach filled with clotted blood; left lung apex showed a partial consolidation; mucopurulent material exuded from bronchi. Aortic aneurysm (rupture into esophagus), pulmonary lues, myocarditis.

Case 3. W. W., male, aged 44, on Sept. 15, 1925, re-entered hospital with previous findings of aortic enlargement with chronic fibrosis in 1922. Now complains of shortness of breath, swelling in chest with severe pain. Positive findings were, eyes irregular, neck showed suprasternal pulsations, tracheal tugging; large expansile tumor in midsternal line from 2nd to 4th intercostal spaces, systolic bruit over tumor, action feeble, pulse no change. Blood pressure 112/70; no change in arms. Edema of lower limbs. Urine negative. Blood Wassermann four plus. Diagnosis, aneurysm of aorta.

Case 4. M. W., female. A similar case which showed prominence of chest and large aneurysm.

Case 5. N. W., female, aged 70, dates her complaint back to 1921 when she noticed swelling of her ankles with shortness of breath, precordial, knife-

like pains for the last year; has a constant, unproductive cough which has been getting worse. Family and past history negative. Urine, slight trace of albumin, no casts. Blood Wassermann four plus. From X-ray findings Dr. Peters made a diagnosis of aneurysm of the innominate artery. Autopsy showed cardiac hypertrophy, a large dilatation of the aortic arch extending into the innominate artery where a large organized clot was found.

Case 6. L. M., male, aged 64, entered hospital Dec. 31, 1923, complaining of shortness of breath, pain over precordia, productive cough and swelling of limbs. Illness dated back for about 2 years with culminating cardiac disturbances including pain over precordia, edema and dyspnea. Previous history included the usual children's diseases, rheumatism at 30; denies venereal infection. Examination showed head negative; eyes, sclera jaundiced, pupils unequal, senile argus, reacting to light and accommodation. Tongue, slight tremor and swollen. Marked carotid pulsation with tracheal tugging. Chest barrel-shaped, poorly nourished, expansion limited generally with spasmodic pauses or cessations and great sucking in at lower end of sternum with each respiratory effort; breath sounds harsh, cog-wheel breathing and many gurgling rales throughout. Cardiac dullness  $3\frac{1}{2}$  cm. outside of nipple line at the 6th intercostal space; 3 cm. to right from midsternal line at 2nd intercostal space. A diffused apex beat with a loud systolic murmur at base and apex, and loudest over the base and aortic area transmitted to neck. Blood pressure average was systolic 150, diastolic 95. Extremities and reflexes negative. Laboratory findings; albumin positive; few hyalin casts; blood count normal; Wassermann positive on repeated examinations. A tentative diagnosis of aneurysm was confirmed by radiograph examination which showed a large circumscribed shadow occupying upper right chest continuous with ascending aorta. Cardiac shadow enlarged both to left and to right and an associated increase in peribronchial markings throughout. Diagnosis, aneurysm of ascending aorta, probably involving right innominate artery. Patient insisted on leaving hospital August 5 with no improvement and re-entered August 19 with symptoms unchanged and edema of extremities, more marked of the right shoulder, chest and arm, probably from vascular stasis due to congestion of recurrent venous circulation. Physical findings of heart and chest showed no change. Radiograph ex-



Fig. 4. Case 4. Aneurysm of arch.





Fig. 5. Case 4. Prominence of chest.

amination showed circumscribed shadow occupying the right upper chest apparently springing from the aorta in the region of the proximal extremity of the ascending portion. Shadow of the transverse and descending aorta plainly visualized. Condition due to an enormous sacculated aneurysm of innominate aorta. Died Nov. 22, 1924. Postmortem findings were, sacculated aneurysm about the size of a large grapefruit involving the innominate artery at its junction with arch of aorta. The sac was filled with large formed blood clot. No rupture of aneurysmal sac. This case is of interest for we were able to observe patient for about 1 year. The radiographic study at intervals shows the progress of the aneurysm.

Case 7. H. W., male, aged 40, symptoms for 2 months of severe pain in upper abdomen which showed an expansive pulsating mass with a loud murmur, systolic in time, varicosities increased. A positive history and laboratory findings. X-ray report by Dr. Peters showed pneumoperitoneum. Examination showed a large retroperitoneal mass at the level of the first and second lumbar vertebrae about the size of a man's fist with definite pulsation, expansile in character; no evidence of inflammatory lesion or other pathology in abdominal cavity. Diagnosis, aneurysm of abdominal aorta.



Fig. 6. Case 6. Sacculated aneurysm.

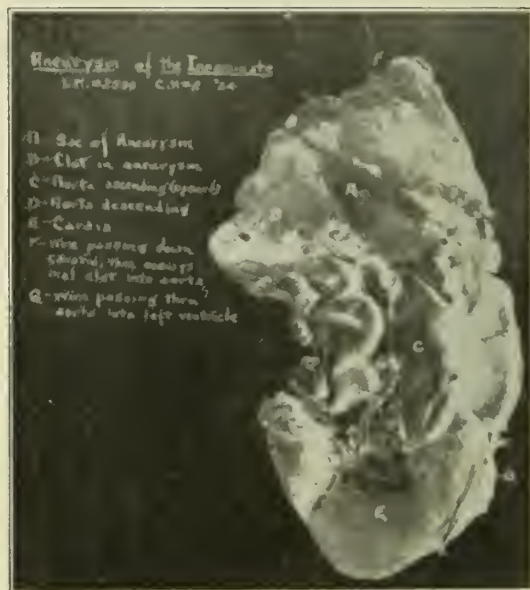


Fig. 7. Case 6. Showing pathology.

The patients usually revealed a systolic murmur, well localized to the aortic area with a to and fro roughening, invariably transmitted to carotids. All cases showed accentuation of aortic second sound with the exception of Case 6 in which an impure first sound was noted in mitral area but dullness over right upper chest beyond midclavicular line with no material change in lung sounds. Even the great size of the innominate aneurysm caused no lung changes probably because the pressure is posterior to the pulmonary circulation. But this condition in the terminal stage produced a marked edema of the upper right chest, forearm and hands.

The blood Wassermann reactions were not positive in all cases studied. The spinal fluids



Fig. 8. Case 7. Aneurysm of abdominal aorta.

were not deemed necessary with positive histories of initial infections of from 2 to 20 years. The blood pressure differences in right and left arms were slight, an average of 10 to 15 mm; all showed cardiovascular symptoms,—dyspnea, palpitation, precordial pain, especially over seat of lesion, which is of diagnostic importance of the portion of aorta affected. In all cases the roentgenograms were of great value, especially in those having only a small degree of enlargement of the aorta where the arch showed increased pulsation (Fig. 1.) Therefore the signs, symptoms and luetic history with the findings of aortitis should always suggest a beginning aneurysm even if the patients do not complain of dyspnea, palpitation, cardiac inefficiency and pain which is angular in character. The finding of roughening with a to and fro murmur at the base should direct your attention to the early recognition of this disease, and intensive and prolonged treatment should be given to prevent permanent and irreparable damage.

The treatment in the early stages is salvarsan, in later stages the iodides.

#### SUMMARY

The cases presented are not early cases as the marked anatomical changes of aneurysm are present therefore the diagnosis could have been established earlier, for physical signs precede the symptoms in most instances as follows: (1) History, (2) substernal pain, (3) broadening of arch, (4) to and fro murmur with accentuated aortic second sound of a metallic character, with or without myocardial changes, (5) if no history of bacterial infection syphilis should be suspected.

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#### PROGNOSIS IN EYE INJURIES

John A. Donovan, Butte, Mont. (*Jour. A. M. A.*, Dec. 21, 1929), states that it will never be possible to foretell the possible results in severe eye injuries, but the probabilities are that useful eyes can be obtained in a great majority of cases. With improved therapeutic methods and careful observation, the possibilities of sympathetic blindness may be more frequently eliminated at not too great a cost. When infection is imminent, mutilation is beyond repair, the patient's lost time is of vital importance, or other conditions are present in which the eye physician must be the sole judge, immediate enucleation is imperative. When ultraconservatism fails, enucleation is always at one's command. The public has acquired the opinion that enucleation is of preeminence in surgery. The patient becomes a hero and the physician is soon forgotten; so, naturally, it may always be the surest and easiest way out for the operator who is unwilling to assume unnecessary responsibility. The saying "Dead men tell no tales" may be paraphrased in ophthalmology to "The enucleated eye relieves all worries."

## WASHINGTON UNIVERSITY CLINICS

### OUR PRESENT KNOWLEDGE OF THE ETIOLOGY OF TRACHOMA\*

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Trachoma constitutes a very serious public health problem throughout the United States and there is evidence that the situation is not improving from year to year. In the State of Missouri alone, as was shown by Dr. Paul Mossman, there are at least 637 persons who are totally blind as a result of a trachomatous infection. These persons, being pensioners under the present law, cost the state annually \$191,100. This figure expresses only a small fraction of the economic loss to the community which trachoma engenders. It does not take cognizance of the 20,000 trachoma patients of this state who are partially incapacitated and are a continuous source of infection to other members of the community.

It is unfortunate for the scientific worker who is focusing his attention upon the problem of the etiology of trachoma, that, although the disease has been known for many centuries, ophthalmologists are not agreed as to its clinical and pathological definitions except in the terminal stages. For example, let us take two selected definitions from well-known authors.

Trachoma has been defined as "an inflammation and hyperplasia of the conjunctiva which originates by infection and produces an infectious purulent secretion" (Fuchs). "It is a follicular disease of the eyes, which in typical cases begins insidiously, and soon involves the entire conjunctiva, leading to scar formation and often to pannus" (Axenfeld). It will be noted that whereas Fuchs emphasizes the occurrence of a purulent secretion, he omits reference to follicle formation. Axenfeld, on the other hand, calls attention to the latter, but does not mention the word *secretion* in his definition.

From the standpoint of pathological anatomy, the essential lesions of trachoma are the enlarged, subepithelial lymphoid follicles of the conjunctiva which constitute the granulations and finally lead to scar tissue formation (Saemisch).

Before the etiology of trachoma is solved it is probable that all of the following six questions will have to be answered:

1. Is trachoma primarily a disease of dietary

\* Summary of a paper delivered before the Washington University Medical Society, January 20, 1930.





Fig. 1. Showing human trachoma in various stages of the disease. Illustration taken from Noguchi's monograph on "The Etiology of Trachoma." (J. Exp. Med. 68:1-53, 1928, Supplement No. 2.)

deficiency? 2. Is it a local ocular manifestation of a systemic infection or metabolic derangement? 3. Is trachoma the result of a single specific infection, or is it due to a series of infections possibly of similar or of dissimilar character? 4. Is trachoma a transmissible disease? 5. Is it due to a filterable virus? 6. Is it due to a protozoan parasite or other specific microorganism?

Let us take up these questions in the order named.

(1) Is trachoma primarily a disease of dietary deficiency? It is now well established that at least one affection of the eye, namely, xerophthalmia, belongs to this category. Royer recently suggested that the primary fault permitting trachoma to develop may be a food fault, or that some "essential food or vitamin has been absent seasonally or habitually." He believes that trachoma shows a selective affinity for the poor and underfed of the world. Up to the present time there has been no experimental or epidemiological evidence to confirm this opinion.

(2) Is trachoma a local (ocular) manifestation of a systemic infection or of a deranged metabolism? Many of the European investigators have sought to discover in trachomatous patients a definite clinical background. Some have presented evidence of a tuberculous habitus, of an exudative diathesis, of lymphatic constitution, and of eosinophilia. Others have called attention to the presence of an associated unilateral rhinitis in cases of monocular trachoma. On the other hand, any such correl-

lation of symptoms with trachoma has been vigorously denied.

While it is impossible at the present moment to answer this question, we cannot disregard the possibility that trachoma may be merely a local (ocular) manifestation of a systemic infection in the same sense that the rash of scarlet fever is a phase of a general toxemia, or just as cataract in diabetes is merely a localized expression of a deranged metabolism.

(3) Is trachoma the result of a single specific infection, or is it due to a series of infections of similar or of dissimilar character, from which the patient may recover spontaneously or under treatment, but which after a certain period lead to cicatricial formation? This very difficult problem may, perhaps, be solved only by clinicians and bacteriologists working together. They would need a large number of cases of conjunctival affections similar to trachoma, and would have to follow them from their incipency until cured or until scar tissue was formed. In this class of diseases might be included folliculosis, follicular conjunctivitis, papillary conjunctivitis, chronic blennorrhoea, vernal catarrh, Parinaud's conjunctivitis, tuberculosis of the conjunctiva, and conjunctivitis due to foreign bodies, sporotrichosis, and syphilis.

(4) Is trachoma a transmissible disease? That trachoma is most likely an infectious disease is suggested by the occurrence of epidemics and by its geographical distribution. Its transmissibility is strongly intimated by its frequent presence in asylums, institutions, boarding schools and among several members of the same family or community. During the recent World War hundreds of conscripted soldiers in the armies of the Russian and of the Austro-Hungarian Empires infected themselves with trachoma in order to avoid active military service. They accomplished this by placing within their conjunctival sacs bits of cotton soaked in the secretion of trachoma patients. Many such cases have been carefully studied by Taboriski, by Kapuscinski, and by Szafniki. The literature presents several protocols of experiments on human subjects which are convincing. Thus, Sattler in 1881 succeeded in reproducing the disease by inoculating the normal, human conjunctiva with the contents of a trachomatous follicle. The period of incubation in his case was seven days. Similarly, Addario (1906) infected three blind persons with the virus and obtained typical trachoma with pannus.

In order to determine beyond any doubt that trachoma is a specific, infectious disease, it is necessary to isolate a specific microorganism or

a filterable virus from cases suffering with the infection, to reproduce the symptoms of the disease in experimental animals, and to recover the organism (or virus) from the latter. Unfortunately, none of the common laboratory animals have thus far been found susceptible, and even many of the lower monkeys and anthropoid apes are resistant to infection with material from human trachoma. Moreover, we do not have definite criteria for the diagnosis of trachoma in these animals. In other words, investigators are not agreed as to what experimentally reproducible lesions in monkeys constitute the equivalent of trachoma in man. Indeed, some workers (Hess and Römer; Greeff, Frosch, and Clausen; and Heymann) state that because of the poor development of the adenoid layer of the conjunctiva, it is impossible to reproduce in monkeys the characteristic lesions (granulations, pannus) seen in man. Still others believe that the so-called complete picture of trachoma in man, including secretion, cicatrization, and pannus, is the result of the action of a mixture of viruses or microorganisms.

Monkeys, including the Algerian magot and the chimpanzee, are subject when kept in captivity for a long time, to a spontaneous granular condition of the eyelids. This fact was observed by Hess and Römer in 1905, but seems to have been overlooked by many workers. The virus is infectious if rubbed into a scarified area of the conjunctiva of either a normal monkey or of man.

(5) Is trachoma due to a filterable virus? Pfeiffer and Kuhnt (1905) tried repeatedly to produce trachoma in human subjects with material obtained by filtering emulsions of trachomatous secretions but without success. Their work, however, lacked a very important control in that they did not test the infectivity of the original material or of the residue obtained after filtration. We need hardly reiterate that many experimental animals, including the anthropoid apes, may be naturally resistant to infection with trachoma. This may be true of man also.

Nicollé, Cuénod, and Blaizot (1913) published from the Pasteur Institute of Tunis protocols of two series of experiments on one chimpanzee and three magots, from which they concluded that the virus of trachoma is filterable through a Berkefeld "V" candle. This phase of the problem requires further investigation in the light of modern researches (Kramer, Mudd) on the physical chemistry of the mechanism by which viruses and bacteria may be filterable.

(6) Is trachoma due to a protozoan parasite

or other specific microorganism? The search for a specific microorganism as the cause of trachoma has occupied the attention of bacteriologists and zoologists since 1881. Numerous fungi and higher bacteria have been incriminated from time to time but none has yet been accepted as the true cause. Thus the bacillus which Robert Koch found to be associated with "Egyptian ophthalmia" in 1883 was shown by Weeks (1885) to be the incitant of an acute conjunctivitis which is now known as Koch-Weeks conjunctivitis. A hemoglobinophilic bacillus was cultivated by L. Müller (1897) in Cairo from cases of acute conjunctivitis which he considered to be trachoma. A similar organism was isolated by Edwards in the Philippines in 1910, and by Williams in New York in 1914. Subsequent studies by Arnold Knapp (1904) suggested that Müller's organism was probably identical with the Pfeiffer bacillus.

It is impossible at the present time to decide as to the exact nature of these organisms because the descriptions are incomplete and because an insufficient number of monkeys were tested with them. Unfortunately, none of the cultures used in these older studies are now available.

It may be pointed out that one of the most important sources of difficulty in the bacteriological study of trachoma is the fact that the conjunctiva of the patient is usually contaminated with a great variety of saprophytic microorganisms (secondary invaders) which may possibly act at first by preparing the *terrain* for the growth of the specific organism and later by inhibiting its proliferation *in vivo* or its isolation *in vitro*.

In 1907 Prowazek and Halberstädter observed that in scrapings made from the conjunctiva the epithelial cells contained, adjacent to the nucleus, irregularly shaped inclusion bodies, staining dark blue or violet against the pale-blue color of the cytoplasm. Upon examining fresh scrapings from day to day they noticed that within these inclusions distinct, fine, red bodies appeared, multiplied quickly and finally caused the disappearance of the blue bodies. The blue masses within the cell, which later became known as "initial bodies," these investigators regarded as simply reaction products of the cell in response to the action of a virus. They believed that the fine, red inclusions were living parasites for the following reasons: first, they were always distinct and apparently showed evidence of multiplication; second, when material from a trachomatous patient containing these bodies was inoculated into an orang-utan, the animal showed the inclusions (but no follicles or



granulations), whereas control experiments with material from other diseases of the conjunctiva were negative. The inclusions could also be transferred in series from one orangutan to another.

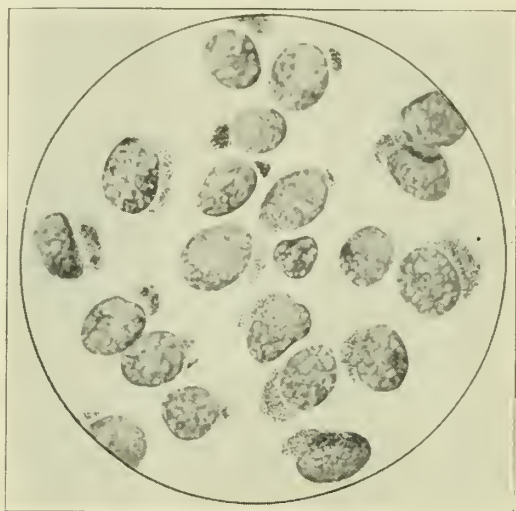


Fig. 2. Epithelial-cell inclusions of trachoma. (Prowazek-Halberstädter bodies.) Illustration taken from Kolle & Wassermann, "Handbuch der pathogenen Mikroorganismen," vol. VIII, 1913, Article by B. Heymann.

If the inclusions of trachoma are to be regarded as living parasites, they are, in this respect, different from the intracellular inclusions found in diseases due to filterable viruses, such as herpes, yellow fever, fowl pox, rabies, vaccinia, smallpox, warts, etc., and we cannot, therefore, on this basis alone classify trachoma in this category (Lipschütz). Prowazek's interpretation as to the biological nature of his inclusion bodies has not been supported by the investigations of Bengtson or of Williams.

The inclusion bodies are usually to be found, according to Axenfeld, in about 52 per cent of early, "fresh" or untreated trachoma patients. Howard found them in 65 per cent of cases among the Chinese. All writers agree that they are seldom seen in cells from the conjunctivae that show evidence of cicatrization, but most often in the early tumescent stage.

Of what significance, then, are the Prowazek-Halberstädter bodies in the etiology or pathology of trachoma? This we do not know. One obstacle to the solution of the problem lies in the fact that the inclusions occur more frequently and in greater numbers in blennorrhoea of the new-born than in trachoma (Stargardt, Schmeichler). To add to the confusion, many observers (Lindner, Heymann, Williams) have found similar epithelial cell inclusions in the male and female genital canals and some have gone so far as to suggest a genital origin of trachoma and inclusion blennorrhoea. Noguchi

and Cohen, and Lumbroso expressed the opinion that the inclusion bodies represent a distinct type of infection which may be present together with conjunctivitis of various types—trachoma, Koch-Weeks infection, gonorrhea, etc.

In May, 1926, Noguchi went to New Mexico to investigate the etiology of trachoma among the American Indians. In four out of five cases he found a minute gram-negative, motile, hemoglobinophilic bacillus which bears a morphological resemblance to *B. xerosis*. With this bacterium he produced a follicular condition in nine out of fifteen *M. rhesus* monkeys and in one chimpanzee, and then made four successful passages of this infection to chimpanzees, baboons and rhesus monkeys. Was Noguchi justified in concluding that "in Bacterium granulosis we have the inciting microorganism of trachoma in man and its equivalent, granular conjunctivitis, in monkey?"

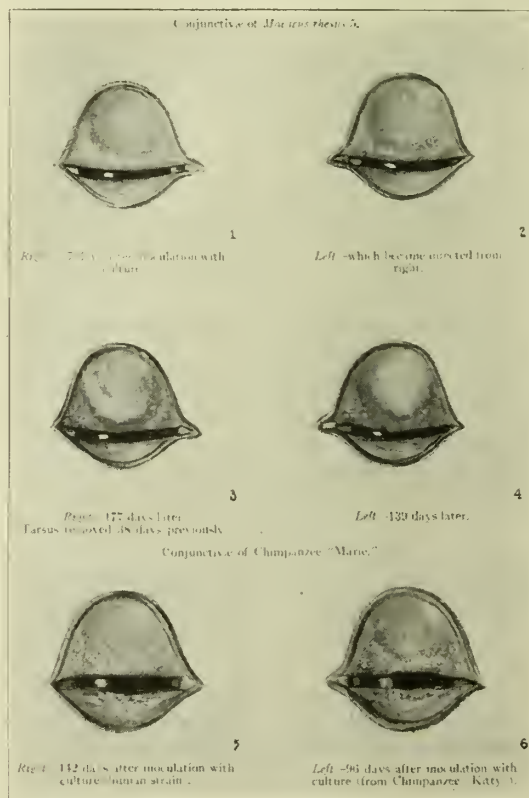


Fig. 3. Showing lesions produced by Noguchi in *Macacus rhesus* monkeys and in chimpanzees. Illustration taken from Noguchi's monograph on "The Etiology of Trachoma." (J. Exp. Med. 68:1-53, Supplement No. 2, 1928.)

We cannot as yet answer this question definitely. While there have been two reports (Stépanowa and Azarowa, Finnoff and Thygeson) which in part confirm Noguchi's work, other authors have failed to confirm it (Lind-

ner, Mayou, de Schweinitz and Adler, Wilson, Bengtson).

The problem of the etiology of trachoma is one of the most difficult in the whole field of bacteriology. We must reinvestigate many of the fundamental and historical observations recorded in the literature and establish criteria for the differential diagnosis between trachoma and spontaneous follicular conjunctivitis. At the present time we do not know whether the lesions that look like folliculosis in monkeys actually correspond to trachoma in man, since by virtue of the poorly developed lymphadenoid tissue of these animals it may not be possible to reproduce in them the identical picture seen in man. It is for this reason that there has been a diversity of opinion among the fifteen foremost American ophthalmologists who have examined Noguchi's monkeys. Several have expressed themselves as believing that the lesions correspond to human trachoma; others are opposed to this view, and still others are non-committal.

Noguchi's work on the bacteriology of *B. granulosis* must be continued so that the following questions may be answered: Can we demonstrate antibodies for *B. granulosis* in the blood of trachomatous or recovered cases? Are the Prowazek inclusions produced by the action of *B. granulosis*? Why is trachoma seldom infectious during any but the florid stages? Is *B. granulosis* present during all stages of the disease? Does it grow on the surface of epithelial cells and can it be found in abundance in scrapings of the conjunctiva as was shown to be true of certain other parasitic bacteria? (Lindner, Howard.)

It must not be assumed that even if *B. granulosis* is finally accepted as the cause of trachoma we will be finished with this great problem. On the contrary, several new and promising fields of investigation will remain. For example, what is this spontaneous follicular conjunctivitis which occurs among rhesus monkeys and chimpanzees, and in Tunisian and Italian rabbits? What is its relation to trachoma in man? Is the presence of secretion in human trachoma due to a mixed or secondary bacterial or virus infection? Are there trachoma carriers? And, of course, there will still remain the most practical problem, namely, the development of specific prophylactic and therapeutic measures against the disease.

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## OLD DISLOCATIONS AT THE SHOULDER

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An old dislocation of the shoulder is one in which the head of the humerus has been out of the glenoid for a sufficient length of time to permit changes to occur in the soft parts that render reduction by the ordinary methods impossible. There is no definite time at which these changes occur but, generally speaking, it may be stated that a dislocation at the shoulder which has been present for a period of three weeks or longer may be classed as an old dislocation. At the present time one would expect such cases to be rare,—and they are; but occasionally such a case presents itself.

The reasons that old dislocations still occur are: (1) The patient may not have consulted a physician thinking that the shoulder was only sprained and would get well without professional treatment. (2) The patient may have consulted a physician and the physician may have failed to make the diagnosis. (3) The patient may have consulted a physician and the physician may have made the correct diagnosis, attempted to reduce the dislocation, and been unsuccessful. (4) The patient may have consulted a physician, the dislocation may have been reduced and, due to inadequate immobilization or improper care on the part of the patient, it may have recurred. Whatever the cause may be, the patient presents himself for treatment with a shoulder which is practically useless and may be the cause of considerable pain.

Practically always the dislocation is of the subcoracoid type and it will be found that the



head of the humerus is out of its socket and can be palpated in the subcoracoid position. The muscles of the shoulder girdle are markedly atrophied, the arm is fixed to the side and very little motion, either active or passive, is possible. Usually the circulation of the arm is intact. In some instances pressure of the head of the bone on the brachial plexus may cause considerable pain in the extremity and more or less paralysis and anesthesia.

When confronted with such a problem the surgeon immediately realizes that reduction of the dislocation will not be a simple procedure and that it may be a dangerous one. He must take into consideration the general condition of the patient, what his mode of life is, how much he is dependent upon the use of his shoulder in earning his livelihood, and whether or not the patient will benefit by reduction. He must also consider in an impartial manner his own skill and whether or not he is able to give the patient the best possible chance for a successful result.

The reasons that these old dislocations are difficult to reduce are: (1) The muscles have become permanently shortened and more or less fibrosed. This applies particularly to the subscapularis, coracobrachialis, head of the biceps, and pectoralis major. (2) Following the extensive hematoma and tearing of the soft tissues there has been more or less extensive scar formation in the anterior region of the shoulder and this fibrous tissue binds the head of the humerus firmly in its abnormal location. (3) The scar tissue may have formed strong adhesions between the head of the humerus



Fig. 1. Old dislocation of shoulder. Three months' duration.



Fig. 2. Same case as Fig. 1 after manipulative reduction. Head of humerus is not in the socket but is resting on anterior lip of glenoid. It later slipped in spontaneously.

and the axillary vessels and nerves. (4) The rent in the capsule may have healed and contracted. (5) The glenoid may have become filled with scar tissue or bone fragments, or there may have been hypertrophy of its anterior margins. (6) The involved bones and especially the humerus have undergone more or less atrophy.

*Choice of Methods.*—The surgeon must decide after his examination whether he is justified in attempting to reduce the dislocation by manipulation or whether he should resort immediately to an open operation. Other things being equal, it may be stated that if the dislocation has existed for eight weeks or less it can usually be reduced by the closed method, and that if it has existed longer than twelve weeks an open reduction is nearly always necessary. Those dislocations of from eight to twelve weeks' duration are borderline cases and the surgeon will base his decision on the amount of movement of the humerus and on his skill in manipulative or operative surgery. Those cases in which the humerus has a considerable range of movement are more favorable for manipulative reduction.

*Dangers of Manipulative Reduction.*—This method is dangerous in the hands of an unskilled surgeon because the procedure cannot be a gentle one and the margin between successful reduction and considerable damage may be a very narrow one. The dangers to be avoided are, rupture of axillary artery or vein, rupture of the brachial plexus, and fracture of the humerus. The blood vessels or nerves may



Fig. 3. Old dislocation of shoulder with fracture of greater tuberosity. Eight weeks' duration.

be so firmly adherent to the humerus that they may be torn in attempts to loosen the head, and the bone atrophy may be so great that fracture of the humerus may result from relatively little violence.

The advantages of the manipulative method are that the anesthetic is usually shorter and that one avoids an open operation with the dangers of subsequent infection. The advantages of the open operation are that one is practically always able to obtain reduction and that there is relatively little danger of injuring important structures. The only positive indications for an open operation are those in which the head of the humerus has been out of its socket for an unusually long time, and those in which the glenoid cavity contains more or less debris, especially fragments of bone.

I wish to report two cases, one of which was reduced by manipulation, and the other by open reduction.

#### REPORT OF CASES

Case 1. The patient is a man seventy-one years old, occupation, laborer, admitted to Barnes Hospital April 16, 1928. Approximately three months before admission the patient had fallen to the ground striking his right shoulder against a block of wood. A physician was called and after examining the shoulder told the patient that he had torn some muscles around the shoulder but that there was no fracture or dislocation. Since that time the patient had been applying liniment to the shoulder, but there had been little or no improvement. Although he was having relatively little pain, the arm was practically useless.

On examination the arm was fixed to the side and abduction was possible to only about 15 degrees. The glenoid was empty and the head of the humerus could be palpated on the front of the shoulder beneath the coracoid process. (Fig. 1) Very little movement in rotation was possible and attempts to move the shoulder elicited moderate pain. There was no evidence of nerve injury and the circulation in the extremity was normal.

Consultation with the medical service elicited the information that this patient was suffering from myocarditis and was a poor anesthetic risk, but that he would probably stand a short anesthetic. For this reason I was rather reluctant to do anything, but the patient stated that he was practically helpless in his present condition and that he wished to have something done regardless of the danger. Consequently, it was decided to attempt reduction by manipulation because of the risk of a long anesthesia.

On April 18, 1928, the patient was anesthetized with nitrous oxid and ether and placed upon the floor. Reduction was accomplished as follows: First, with the elbow flexed, the humerus was slowly but strongly rotated both internally and externally until the head was comparatively free. These movements were carried out in a slow, steady manner in order to stretch the muscles gradually and avoid tearing the vessels and nerves. Then the humerus was further loosened by slow forcible abduction, adduction and flexion of the arm. Having secured a considerable degree of mobility, the operator then removed his shoes, sat upon the floor facing the patient's right shoulder. The operator's foot was placed in the patient's axilla against the border of the scapula and the left foot was placed upon the patient's acromion. With the elbow flexed he grasped the arm just above the elbow and slowly and strongly pulled the arm directly outward. This outward traction was kept up for some minutes and was aided by an assistant who pressed the head of the humerus outward with the heel of his hand. In this manner, after some minutes of traction, it was felt that the head of the humerus had moved outward to a considerable degree and Kocher's maneuver was attempted. It was found that more force than seemed advisable was necessary to carry out the maneuver. Consequently, the lateral stretching was repeated, the maneuver was attempted again and it was possible to carry out the external rota-



Fig. 4. Same as Fig. 3 after open reduction and removal of loose bone from glenoid.



tion, adduction and internal rotation. This did not, however, accomplish complete reduction in spite of the fact that it was possible to place the hand on the opposite shoulder. The head of the humerus was moved upward and came to rest upon what appeared to be the anterior rim of the glenoid, but could not be forced into the socket. (Fig. 2) Consequently, the arm was immobilized against the chest with the hand on the opposite shoulder by an adhesive bandage and the anesthetic was discontinued. The patient was sent home with instructions to return at the end of two weeks for an open reduction. When he returned, it was found that the head of the humerus had slipped into the glenoid and that the reduction was complete.

Case 2. A man, fifty-two years old, occupation, brick layer, was admitted to Barnes Hospital on February 29, 1928. One month before he had fallen forward on the ice striking the right shoulder and dislocating it. This had been reduced by his physician and the arm immobilized in a Velpeau bandage. He did not return to the physician for four weeks and when he did return it was found that the shoulder was again dislocated. He was sent to the clinic for treatment. He stated that since the time of the injury he had had almost continuous pain in the arm and shoulder. The pain extended down to the finger tips.

On physical examination the head of the right humerus was found to be absent from its socket and could be palpated in the subcoracoid region. The arm was held close to the side, there was no active motion, and any attempt at passive motion caused considerable pain. Pressure on the elbow transmitted upward through the shaft of the humerus also caused considerable pain. The pain was distributed generally over the elbow, forearm and wrist, and was not confined to any particular nerve distribution. There was no paralysis and no sensory changes were noted. Circulation in the arm was normal. Because the X-ray showed a typical subcoracoid dislocation with a fracture of the greater tuberosity and there appeared to be some loose fragments in the glenoid, (Fig. 3) and the obvious nerve symptoms, and also because this was a strong muscular individual, it was decided not to attempt manipulation but to reduce the shoulder by an open operation. Since he had a furuncle on the face he was sent home with instructions to return when the infection had cleared up, as it was not considered favorable to operate on the shoulder in the presence of an active pyogenic infection elsewhere in the body.

He returned to the hospital on March 12. The shoulder was given a 48 hour preoperative preparation and operative reduction was performed on March 15 as follows: With the patient on his back with a sand bag under his right shoulder and so draped that the right arm could be freely manipulated, an incision about five inches long was made downward and outward from the level of the clavicle at the point between the deltoid and the pectoralis major muscles. As the cephalic vein was exposed in the incision this was ligated at either end of the incision and the exposed portion was excised and removed. The two muscles were then separated by sharp dissection and the head of the humerus was exposed by retracting the pectoralis major muscle while the glenoid was exposed by retracting the deltoid. The rent in the capsule was obliterated by rather delicate fibrous tissue. This was removed by sharp dissection and some partially loose fragments of bone were removed from the glenoid. The humerus was then rotated outward

strongly at the same time the adhesions around its head were separated by blunt dissection. The outward rotation seemed to be limited by the pectoralis major muscle so this was divided at its insertion by the Z method. With strong outward rotation of the humerus the insertion of the subscapularis muscle was brought into view. This was divided by the Z method and the remaining adhesions were stripped off of the head of the humerus so that it became freely movable. It was now comparatively easy to manipulate the head of the humerus into its socket. This having been done the tendons of the pectoralis major and subscapularis were sutured to their former insertions and the rent in the capsule was repaired as well as possible with tissues in the vicinity. The wound was then closed in layers without drainage and the arm was immobilized at the side with the forearm across the lower part of the chest by means of an adhesive dressing.

The operation consumed 55 minutes, the post-operative course was uneventful. The sutures were removed on the sixth day and the patient went home on the ninth day after the operation. The post-operative X-ray showed reduction (Fig. 4).

#### SUMMARY

The treatment of old dislocations of the shoulder is discussed and two typical cases are presented. The first of these was reduced by manipulation and the second by open operation. The technic of these procedures is given and it is pointed out that an apparent failure may result in a complete reduction if the head of the humerus can be brought to the anterior border of the glenoid and the arm immobilized with the hand on the opposite shoulder. In our first case this procedure resulted in a slow, apparently spontaneous and painless reduction of the dislocation.

#### GUARD MODERN CHILD FROM LACK OF REST

To the child of the present age rest is a necessity. Noise and whirl of activity, shifting sights, passing traffic, all contribute to fatigue in the modern child. So says Dr. Rachel Ash in an article in the January *Hygeia*.

A child has an undeveloped, rapidly growing nervous system and body structure. It is essential that adequate periods of rest be provided in which the body cells may recover the energy that is used in hours of constant activity.

Children should not come to meals overtired. Mothers should arrange for a rest period of at least one-half hour in which the children may lie down or play quietly with books or crayons. Similarly a child that is inclined to be nervous should not be allowed to romp before bedtime. This is an ideal time for reading aloud or looking at pictures, provided the pictures are not exciting or terrifying.

Let your child work and play within his limits of endurance. Drop the tennis or dancing lesson if necessary; don't force the child too rapidly along his scholastic career. Just as one man's meat is another man's poison, so the amount of activity that the superaverage or even the average child can indulge in safely may not be the proper amount for your sensitive and more delicately adjusted child.

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MARCH, 1930

## EDITORIALS

### A FEDERAL NARCOTIC AUTOCRACY

Two bills now before Congress, if they become laws, will make physicians, dentists, veterinarians, and pharmacists dependent for the use of narcotics on a federal license passed upon and issued by a bureau chief under regulations of his own making. The bills are H. R. 9053 and 9054 introduced in the House of Representatives by Representative Stephen G. Porter, of Pennsylvania, January 23.

The bills provide for a bureau on narcotics and a Commissioner of Narcotics in the Department of the Treasury. In this one person is to be vested all the power now exercised by the Federal Narcotics Control Board which is to be abolished. The Commissioner is authorized in the bill to prescribe all rules and regulations necessary for issuing, revoking, and suspending licenses. He is limited in no way by any state laws or any licenses the states may have issued. In fact the only definite limitation seems to be that a license cannot be issued to any applicant who has been convicted of violating the law relating to narcotic drugs in any state. The offender can never thereafter use narcotics professionally for a new license cannot be issued. The Commissioner is restricted from issuing a license to a narcotic drug addict but it is left to the Commissioner to determine what constitutes a drug addict.

The proposed law is not inconsistent with the Harrison Narcotic Act and does not expressly repeal it but merely adds to such obligations. There is nothing to indicate that the physician will be relieved of the obligation to register annually with the Commissioner of Internal Revenue, or of paying the annual narcotic tax.

No suggestion is made as to who may or may not use narcotics either commercially or professionally; what conditions shall govern

the issuance, suspension, and revocation; how long a period or how great an area a single license is to cover; what limitations as to character are to be made; what amount of narcotics may be used; how the amount is to be decided; or what records are to be kept. All these matters are left to the discretion of the Commissioner. Nor is the jurisdiction of the state recognized in such matters.

Added to the autocratic procedure of granting licenses is that of revoking a license. When the Commissioner is considering withdrawing the license, he is under no obligation to notify the licensee or to show cause why the license should be revoked. The bill merely states that he may give notice. All proof is left to the licensee, reversing the legal procedure of proving a charge before a conviction. Within twenty days after such notice may have been given, the licensee may file a written request with the Commissioner for a hearing, together with the reasons why the license should not be revoked. Then an obligation is placed on the Commissioner. He shall arrange for a hearing to be held within twenty days after the request. But the hearing is to be held where the Commissioner deems it most practicable and convenient in regard to the evidence to be produced. The licensee has no voice in determining where the hearing is to be nor has he any means of having it transferred, although the Commissioner is supposed to consider his place of residence together with the evidence in selecting the place.

Any officer or employe of the bureau designated by the Commissioner can hold hearings. This person can administer oaths, examine witnesses and issue subpoenas for the attendance and testimony of witnesses, the production of books, documents or other evidence. And upon request of the licensee, and telling what each witness will testify to, the person holding the hearing is to issue subpoenas if he deems them necessary in the prosecution of the hearing.

The evidence is to be recorded and forwarded to the Commissioner who will make the decision. Provision is made whereby the licensee may appeal from the decision of the Commissioner to the Supreme Court of the District of Columbia or to a district court of the United States, but no provision is made for suspending the decision of the Commissioner pending a court decision.

These bills, if passed, would offer nothing to alleviate the misuse of narcotics but would merely establish an autocratic bureau. Members are urged to write to their representatives and senators protesting the passage of the bills.



## THE RADIO AND MEDICAL FRAUDS

About 18 months ago, a widely advertised health institution in the western part of Missouri which could not be endorsed by the medical profession attempted to advertise by broadcasting over a St. Louis broadcasting station. Acting on the advice of the Missouri State Medical Association, the broadcasting station investigated the institution through the Better Business Bureau, found its statements unsound and refused to accept a contract. This culminated in the agreement of all radio stations, broadcasting locally in St. Louis, to confer with the Better Business Bureau on medical concerns attempting to advertise over the radio. This was the first agreement of this kind in the country, according to the Better Business Bureau of St. Louis.

In many parts of the country this problem has not been so easily dealt with. On December 26, 1929, Dr. Shirley W. Wynne, commissioner of health in New York City, protested to the Federal Radio Commission and asked that agency's assistance in meeting this problem. Dr. Wynne was informed that the Commission is powerless at the present time except when specific complaints and verbatim reports of the broadcast are filed and the charges prosecuted before the radio commission.

Dr. Charles A. Neal, director of the Ohio State Department of Health, in endorsing Dr. Wynne's action, said, "While time has not permitted the tabulation of the amount of harm due to advertising by air by the quack doctors and pseudoscientists, the ill effects of this manner of advertising each day become more apparent to public health authorities."

Propaganda disseminated through broadcasting by medical quacks and unscrupulous commercial health concerns are listed as including worthless patent medicines, alleged remedies and so-called scientific treatment methods and institutions.

Dr. Wynne followed a somewhat similar plan to the one in St. Louis and appealed to the broadcasting station. This procedure was the consensus of a conference of broadcasters, medical authorities, and business groups held early in January. The situation in New York has to some extent been cleared by an agreement based on the code of ethics of the National Association of Broadcasters. It reads in part:

Recognizing that the radio audience includes persons of all ages and all types of political, social and religious beliefs, every broadcaster will endeavor to prevent the broadcasting of any matter which would commonly be regarded as offensive.

When the facilities of a broadcaster are used by others than the owner, the broadcaster shall ascertain the financial responsibility and character of such client, that no dishonest, fraudulent or dangerous

person, firm, or organization may gain access to the radio audience.

Matter, which is barred from the mails as fraudulent, deceptive, or obscene shall not be broadcast.

Every broadcaster shall exercise great caution in accepting any advertising matter regarding products or services which may be injurious to health.

No broadcaster shall permit the broadcasting of advertising statements or claims which he knows or believes to be false, deceptive or grossly exaggerated.

The Kansas City Better Business Bureau is now cooperating with local stations in supplying information to prevent misleading statements and claims over the radio. The movement is spreading and is gradually taking the form of a general agreement between broadcasting stations and Better Business Bureaus.

## THE HANNIBAL SESSION

In this issue we publish the preliminary program for the Hannibal meeting. Dr. Howard B. Goodrich is chairman of the Committee on Arrangements and has appointed various committees to look after the welfare and comfort of the members. While the dates of the meeting are quite a little way in the future it is not too early to remind our members to begin planning to attend this session in the interesting city of Hannibal, the home of the world's great humorist, Mark Twain. Headquarters will be at the Mark Twain Hotel and all meetings will be held in the Elks' Hall. The committees appointed by Dr. Goodrich are:

## LOCAL COMMITTEE ON ARRANGEMENTS

Howard B. Goodrich, Chairman; W. F. Francka and Eugene M. Lucke.

Committee on Hotels: W. F. Francka, Chairman; John J. Farrell and A. L. Shanks.

Committee on Registration: C. W. Hamlin, Chairman; H. L. Banks and I. E. Hill.

Committee on Exhibits: E. R. Motley, Chairman; W. P. Birney and W. H. Hays.

Committee on Golf: Eugene M. Lucke, Chairman; J. W. Hardesty and E. T. Hornback.

Committee on Auto Transportation: H. O. Daniel, Chairman; Harry B. Norton and P. J. Reichmann.

Committee on Reception: Charles E. Salyer, Chairman; J. N. Baskett, James C. Chilton, J. W. Hardesty and T. A. Roselle.

Committee on Entertainment: F. E. Sultzman, Chairman; T. A. Roselle and U. S. Smith.

## COUNCIL ON PHARMACY AND CHEMISTRY: A QUARTER CENTURY OF SERVICE

February 11 marked the twenty-fifth anniversary of the Council on Pharmacy and Chemistry of the American Medical Association.

For a quarter of a century this group has been the leader in stabilizing the status of medicinal drugs which are not included in the United States Pharmacopeia.

Many of the original members are still connected with the Council and W. A. Puckner, secretary, has rendered continuous service as a full-time officer for the body from the very first.

The cooperation of the medical profession has been of mutual benefit. The Council regularly publishes its findings in *The Journal of the American Medical Association*. It has to a large extent brought about nonsecret formulas, the elimination of names of diseases and descriptive names from labels, and discontinuance of unwarranted, exaggerated or misleading statements.

The advertising pages of *The Journal of the American Medical Association* reflect the work of the Council. Previous to this work a disordered state of materia medica was apparent. But after the formation of the Council only advertisements of medicinal preparations passed on by the Council were carried. All state journals, with the exception of Illinois and New York, and quite a few medical publications not controlled by state medical societies now support the Council.

Many manufacturers have welcomed the work of the Council and are to be congratulated on their cooperation which they now realize is returning benefit to them. This year the Council on Pharmacy and Chemistry plans to make available to manufacturers whose products are accepted, a distinctive seal with which they may mark their products and advertising.

The Council has extended its activities by creating a Committee on Foods. This committee will examine and pass upon the manufacture of various food articles. This cooperation has been eagerly accepted by many manufacturers.

The Council is to be felicitated on this anniversary which marks the ending of a quarter of a century of serving the medical profession. Where previous to the creation of the Council the physician was dependent on the integrity of the manufacturer, he now can know that a preparation contains the ingredients it is said to contain.

#### THE DEATH OF DR. NOYES

On February 4 Dr. Guy Lincoln Noyes, Columbia, dean of the medical school of the State University, was claimed by death after a long illness.

Dr. Noyes was well known to a large number of the members of our Association through

his earnest and faithful activities in the work of the Boone County Medical Society and the State Medical Association over a long period of years. He was devoted to his duties as a teacher in the medical school and endeared himself to the students and the faculty through his generous nature and his loyalty to the institution and the profession that he served.

The Boone County Medical Society, at its meeting on February 5, adopted resolutions in memory of Dr. Noyes.

The Board of Curators of the University, at a meeting held in Kansas City on February 8, directed that the University Hospital at Columbia be named the Noyes Hospital in honor of Dr. Noyes, and voiced an appreciation of him in a set of resolutions.

Both these memorials appear on another page in this issue.\*

\* See page 140.

#### WARNING

On about January 10, 1930, a man claiming to be a medical graduate of a German university was employed as an intern at the Lutheran Hospital, St. Louis. After fourteen days he disappeared without notice. Shortly after his disappearance, Dr. Joseph H. Marks, an intern, discovered that important papers belonging to him could not be found. The list of papers follows: St. Louis University Diploma, 1928; Missouri State Board of Health certificate No. 20158, dated August 28, 1928; certificate of commission of First Lieutenant, United States Army Medical Corps, June, 1928; certificate of one year internship at Jewish Hospital, St. Louis; Carthage, Missouri, High School diploma; Zeta Beta Tau fraternity certificate; St. Louis University class picture, 1928.

This man speaks with a marked German accent and might be identified by the following description: German-Hungarian, about 28 years old, 5 feet, 8 inches tall, weight about 130 pounds, blond, light brown hair, mustache, scar on chin, blue eyes. Drives Chevrolet coupe, almost new, Ontario license. His wife is Hungarian, dark, black hair, 5 feet, 5 inches, weight about 150 pounds.

#### NEWS NOTES

Dr. Willard Bartlett, St. Louis, was the guest of the Texas Surgical Society at its fourteenth annual meeting held at San Antonio, February 3 and 4, and delivered an address on "A Radical Operation for Cancer of Rectum; Two Steps of Combined Operation at One Sitting."



Dr. Wm. Engelbach, formerly of St. Louis, now in Santa Barbara, California, has inaugurated a systematic course of illustrated lectures on disorders of the endocrine glands, to be given in Santa Barbara. The series began February 7 and will be given each Friday evening. Dr. E. K. Shelton is associated with Dr. Engelbach in the series of lectures.

An unusual devotion and fidelity to the Lafayette County Medical Society is related by the secretary, Dr. W. E. Koppenbrink, Higginsville. He writes that Dr. J. W. Horner, Alma, who is over 70 years of age, has attended twelve of the last sixteen meetings of the Society. When the meetings are held in Higginsville, Dr. Horner must travel 26 miles; when in Lexington, 52 miles; and when in Odessa, 60 miles. Dr. Horner has traveled 550 miles to attend these twelve meetings.

A psychiatric examination of all convicted felons was recommended recently by Judge Thomas M. Cotter, Detroit. His suggestion followed the report of psychiatrists on 100 unselected felons, which showed only three with "no essential mental defects." Two were reported definitely insane; thirty-three, feeble-minded; twenty-five, inferior intellectually; the other thirty-seven, having deviations in personality handicapping them in adequate social adjustment. Seventy-seven of the group had an aggregate of 283 arrests listed. The 100 examined included fifteen women.

A \$1,000,000 hospital in St. Louis for patients of moderate means, to be administered by the school of medicine of St. Louis University and the Sisters of St. Mary, was provided for by the will of the late Firmin Desloge, according to an announcement by Dean Alphonse M. Schwitalla of the St. Louis University School of Medicine.

Plans include a building erected according to the newer ideas of hospital construction. There will be approximately 300 beds with a third of these entirely free and the room rental of others on a graduating scale. Dean Schwitalla announced a preliminary declaration from the department of surgery that a sliding scale of fees limited by a modest maximum sum would be established and would be dependent on the scale of room rentals.

The hospital will be called the Firmin Desloge Memorial Hospital and will be erected on a site now held by the university for hospital purposes, located opposite the school of medicine.

At the next meeting of the Trudeau Club which will be held at 8:15 p. m. March 6, in the St. Louis Medical Society building, the subject of X-ray will be discussed. The following papers will be presented: "The Mediastinum," by Dr. P. F. Titterington; "What the Other Fellow Sees," by Dr. E. H. Kessler; "A Consideration of McPhedran's Childhood Tuberculosis," by Dr. L. R. Sante. Members of the medical profession are invited to attend.

Expenditure necessary to bring health work in St. Louis County up to the same standard as that in the City of St. Louis would be \$100,000, according to Dr. Max C. Starkloff, city health commissioner. This would represent a yearly increase of \$80,000 for the county. The statement was made before committees of the Council of Metropolitan Development, a body studying the feasibility of county and city consolidation. The subcommittee on health has prepared a recommendation to the entire committee that the health work of the county and city be centralized.

The medical staff of the Missouri Pacific Railroad Company met in St. Louis and formed the Medical Association of the Missouri Pacific Lines. Over four hundred attended the meeting which was held in the auditorium of the St. Louis Medical Society building. It is planned to meet annually at various points on the lines. Dr. O. B. Zeinert, St. Louis, was elected president; Dr. John L. Evans, Wichita, Kansas, first vice president; Dr. H. L. Kerr, Crane, Missouri, second vice president; Dr. H. J. Scherck, St. Louis, secretary-treasurer. The proceedings of the meeting are published in another column in this issue.\*

\* See page 145.

The Fifth International Congress of Physiotherapy will be held in Liege, September 14 to 18, 1930, in connection with the celebration of the Centenary of the Independence of Belgium. Five countries will furnish speakers at the Congress, Holland, Denmark, Belgium, Germany, and the United States of America.

Affections of the central nervous system and rheumatism will be the principal subjects discussed. Twenty-two reports and forty-nine communications have already been entered on the program in the lines of kinesitherapy, physical education, radiology, electrology, hydriology, thermotherapy, and actinology.

Members interested in further information on the Congress may obtain this from Dr. Wm. B. Snow, 1650 Broadway, New York City.

"The Hebrew Physician," the only medical journal published in Hebrew outside of Palestine, has issued its second number. It is edited by Drs. Moses Einhorn and L. M. Herbert, with offices at 983 Park Avenue, New York City. The contents are made up principally of articles on current medical topics. One section is devoted to new Hebrew medical terminology. A copy of a manuscript on hemorrhoids written in 1265 A. D. by Shlomo Eben Ayub, of Badrash, France, is a feature of this issue.

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Fire hazards in state eleemosynary, educational and penal institutions, which were pointed out in a recent inspection by the Missouri Inspection Bureau and the Missouri State Fire Prevention Association, are being eliminated so far as funds and the type of construction of the buildings permit, according to a recent announcement made by Governor Caulfield. Prevention work has consisted principally of eliminating defects in electric wiring and safeguarding the heating systems. Additional fire-fighting apparatus will be purchased for each institution. A fire-fighting company has been formed at State Hospital No. 2 at St. Joseph and trained by the officers of the St. Joseph city fire department. Supervisors for the other state hospitals will be sent to St. Joseph for instruction in fire-fighting and then they will form companies in their various institutions.

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Following a study of the welfare of the blind in twenty-six countries, the health organization of the League of Nations has recommended to the National Society for Prevention of Blindness, New York City, the adoption of a general standard of blindness throughout the world.

The varying standards and practices appertaining to blindness in different countries prompted this action of the League. The recommendation is made in an effort to secure greater uniformity in the treatment of the blind, to facilitate comparison of statistics, and to determine more precisely the extent of the real administrative problem in various countries.

The recommendation of the League recognizes that a sudden adoption of a uniform standard would deprive persons in some countries of the benefits they now receive and would involve increased expenditure in other countries. It suggests, therefore, that the first step be the establishing of definitions of blindness and determining for what purposes these

classifications will be used: as, for census, education, training, employment purposes; and financial assistance. The recommendation suggests that when administrators have determined for what purposes the definitions are needed, the definitions themselves be drawn up in relation to medical facts by an international body of eye specialists.

Estimates of the blind population of the world show that organized work is needed. These estimates, varying from 2,390,000 to 6,000,000, also show that the first work must be elementary, even to agreeing on a definition of blindness.

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In recognition of her 19 years spent in blind prevention work, the Ophthalmic Section of the St. Louis Medical Society gave a dinner on Valentine Day for Mrs. Anna F. Harris, executive secretary of the St. Louis Society for the Blind. She began her work in this field as executive secretary of the Missouri Association for the Blind when it was organized in 1911. Under her management, the first combined school and shop for the blind was opened. There are now shops in St. Joseph, Kansas City, Joplin, Jefferson City, and Springfield.

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Practically every new element discovered by science as having health properties has been seized upon at once by fakers and defrauders and exploited. Soon after its discovery, radium was exploited in this manner and is still made the vehicle for many highly exaggerated promises of health.

A report on products claimed to be radioactive, made by J. W. Sale, an expert of the United States Food, Drug, and Insecticide Administration, shows that only five per cent of the products analyzed contain material quantities of radium. Analysis for radium content has been made of hair tonics, bath compounds, suppositories, tissue creams, tonic tablets, face powders, ointments, mouth washes, demulcents, opiates, ophthalmic solutions, healing pads, and other preparations in solid, semisolid, and liquid form for which therapeutic value was claimed on the ground of radioactivity.

One of the articles examined consisted of a short glass rod, one end coated with a yellow substance, enclosed in a glass bulb. This device when hung over a bed would, according to the promoter, disperse "all thoughts and worry about work and troubles, and bring contentment, satisfaction, and body comforts that soon result in peaceful, restful sleep."

In order to obtain a minimum daily dosage



of radioactivity it would be necessary to drink 1,957 gallons of water each day, in the case of one of the alleged radioactive waters examined.

Action is being taken under the Federal Food and Drugs Act against alleged radioactive products which are falsely or fraudulently misbranded under the terms of the law. Many have been removed from the market.

Members of the St. Louis County Medical Society were entertained by Dr. William F. O'Malley at his home, 333 Dickson Ave., Kirkwood, on January 24. After a social evening and music by an orchestra, a turkey lunch was served.

Those attending were Drs. O. W. Koch, L. M. Riordan, C. P. Dyer, J. F. Clancy, Garnett Jones, W. E. Harral, Joseph McNearney, C. D. Magee, J. A. Sterling, F. A. Dill, St. Louis; E. E. Tremain, P. M. Brossard, L. W. Cape, P. N. Davis, E. O. Breckenridge, Maplewood; C. L. Davis, Earl L. Brand, F. C. E. Kuhlmann, F. P. Gaunt, H. N. Corley, C. C. Irick, H. A. Goodrich, Webster Groves; John H. Armstrong, D. Henry Hanson, Kirkwood; John H. Sutter, University City; R. B. Denny, Creve Coeur; John O'Connell, Overland.

Wherever man settles in his desire to discover new fields of action, scientific medicine finds him sooner or later in the person of a physician to administer to his body ailments and contribute to his progress in all lines.

One of the most outstanding examples of such a physician is Sir Wilfred Grenfell who went to Labrador in 1892 to determine whether medical service could be established among the British, American, and Canadian fishermen. He not only found such a service possible but built up one of the most unique medical practices of today. As a physician, surgeon, and magistrate, Sir Wilfred performs surgical operations, marriage ceremonies, and settles disputes among the inhabitants.

Much of his work is made possible by his hospital ship, *Strathcona*, in which he cruises along the 1500-mile coast line during the open-water season, ministering to his patients. When the ship enters a harbor the whistle is blown and the people of the village flock aboard; some, because they are sick; some, because they have been sick; and others, because they fear sickness before the ship comes again. Minor operations are performed on board and very sick patients are carried on the ship to the nearest hospital.

During the thirty-eight years that Sir Wilfred has worked in Labrador he has built five

hospitals, six nursing stations, two schools, and established industrial work which gives employment to 1000 women and offers opportunities to disabled fishermen.

Sir Wilfred is now in this country giving lectures on Labrador as a means of raising revenue for needed repairs on the hospital ship, for the establishing of a nursing service at St. Mary's River where there are now no medical facilities during the winter, and for the installation of a water supply at a new hospital station.

The United States Civil Service Commission announces open competitive examinations for occupational therapy aide (arts and crafts), occupational therapy aide (trades and industries), and occupational therapy pupil aide (trades and industries). Applications for the positions must be on file with the Civil Service Commission at Washington, D. C., not later than March 12. The examinations are to fill vacancies in hospitals of the United States Veterans' Bureau throughout the country. Competitors will not be required to report for examination at any place, but will be rated on their physical ability, and on their education, training, and experience. Full information may be obtained from the United States Civil Service Commission, Washington, D. C., or from the secretary of the United States Civil Service Board of Examiners at the post office in any city.

The Southern Surgical Association held its forty-second annual meeting December 10-12, 1929, at the Atlanta-Biltmore Hotel, Atlanta, Georgia. Among the forty papers on the program the following were read by St. Louis members of the association: "A Useful Semi-Anesthesia," by Dr. Willard Bartlett; "Rational Therapy for Cancer of the Lower Lip," by Dr. Ellis Fischel; "Hypospadias and Epispadias: Indications for and Technic of Their Operative Correction," by Dr. Vilray P. Blair. Dr. Blair's paper was illustrated with lantern slides. In addition to the St. Louis physicians who read papers, Drs. Fred W. Bailey, Major Seelig and Francis Reder, St. Louis, attended the meeting. Dr. Bailey was a vice president for the year ending 1929. The following officers were elected: President, Dr. James M. Mason, Birmingham, Alabama; vice president, Drs. Urban Maes, New Orleans, and Alexius McGlannan, Baltimore; treasurer, Dr. Julius H. Taylor, Columbia, S. C.; secretary, Dr. Robert L. Payne, Norfolk, Va., reelected. The next annual meeting will be held in Lexington, Ky.

The technical classification of monkeys and their diseases in relation to diseases of man is the subject matter of Hygienic Laboratory Bulletin 152 of the United States Public Health Service. The bulletin was prepared by Professor C. W. Stiles, of the United States Bureau of Animal Industry. It includes a classification of apes, monkeys and lemurs, and under each animal cited is a list of its parasitic diseases. A list of parasites is given with all apes, monkeys or lemurs for which each has been reported, and notations as to whether the parasite is transmissible to man. While the inquiring physician would find the book of interest, it is of most value to anatomists, bacteriologists and zoologists. The bulletin may be obtained free by applying to the Surgeon-General of the United States Public Health Service, Washington, D. C.

Dr. Grandison D. Royston, St. Louis, was one of three selected at a recent meeting of the American Association of Obstetricians, Gynecologists, and Abdominal Surgeons, to serve as examiners on the American Board of Obstetrics and Gynecology. The others named were Dr. Walter T. Dannreuther, New York, and Dr. Paul Titus, Pittsburgh. This board was proposed in 1927 by the American Association of Obstetricians, Gynecologists, and Abdominal Surgeons, as a committee on standardization of requirements for specialists in obstetrics and gynecology. The purpose of the board is to examine voluntary candidates and issue certificates to the successful applicants. The Section of Obstetrics, Gynecology and Abdominal Surgery of the American Medical Association, at the Portland meeting, appointed a committee to cooperate with the two existing committees. The American Gynecological Society furnishes the other members, making a board of nine.

At the annual four-day course for graduate veterinarians given by the State University at Columbia, a special session was held jointly with the Boone County Medical Society on January 22 when the theme was the relation of the diseases of animals to diseases of man.

Dr. A. V. Hardy, Iowa City, acting assistant surgeon of the United States Public Health Service, and director of the Iowa State Public Health Laboratories, lectured on "Undulant Fever in Man and Its Relation to the Brucella Abortus Infection in Cattle and Swine."

Rabies in man and animals was another subject discussed at the meeting. Some interesting material was presented which had been lent to the University for this occasion. Dr. Julius Hess, professor of pediatrics, University of Illinois Medical College, Chicago, lent data on

his clinical cases in Cook County Hospital, which were illustrated by motion picture films; Dr. E. R. Mugrage, Denver, professor of clinical pathology, University of Colorado, and Dr. J. C. Flynn, Kansas City, Missouri, specialist in diseases of small animals, sent motion films on rabies in dogs. Utilizing this material, Dr. C. W. Stiles, Pathology Division of the United States Bureau of Animal Industry, delivered a highly interesting address on the clinical features of rabies. Dr. M. Pinson Neal, Columbia, gave an enlightening talk on "The Essential Pathology and Some of the Commonly Unrecognized Features of Rabies."

Doctors Ralph Graham, of the United States Bureau of Animal Industry, and Homer A. Wilson, state veterinarian, discussed the eradication of tuberculosis in cattle and other farm animals.

The following articles have been accepted for New and Nonofficial Remedies:

Abbott Laboratories

Butesin Picrate Eye Ointment

Lakeside Laboratories, Inc.

Ampoules Dextrose (d-Glucose) 10 Gm., 20 cc.

Ampoule No. 51 Sodium Cacodylate 0.243 Gm. (3¼ grains), 5 cc.

H. K. Mulford Co.

Pneumococcus Antibody Solution, Types I, II and III Combined—Mulford, four 50 cc. double-ended vials

The following articles have been exempted and included with the List of Exempted Medicinal Articles (New and Nonofficial Remedies, 1929, p. 481):

Davies, Rose & Co., Ltd.

Pil. Digitalis (Davies, Rose)

Kings County Packing Co.

Sac-A-Rin Brand California Bartlett Pears

Sac-A-Rin Brand California Tidbits

Hawaiian Pineapple

Sac-A-Rin Brand California Royal Anne Cherries

Lakeside Laboratories, Inc.

Ampoule No. 64 Calcium Chloride 10%



## OBITUARY

GUY LINCOLN NOYES, M.D.

Dr. Guy L. Noyes, Columbia, Dean of the Medical School of the University of Missouri, died at the University Hospital, Columbia, February 4, of heart disease, aged 57. He was a graduate of the University of Vermont, 1894, and of the University of Michigan in 1901, and did postgraduate work at Harvard Medical School. He began practice at Burlington, Ver-





GUY LINCOLN NOYES, M.D.  
1872-1930

mont, in 1894, and in 1902 was appointed demonstrator of ophthalmic and aural surgery at the University of Michigan. That same year he was appointed professor of diseases of eye and ear at the University of Missouri and became dean of the medical school in 1913 which position he held until the time of his death. He was commissioned First Lieutenant in the Medical Reserve of the United States Army in 1916 and served at Nevada, Missouri. He was a member of the numerous medical societies of his specialty, a Fellow of the American Medical Association and of the American College of Surgeons. In 1926 he was elected vice president of the Association of American Medical Colleges. He is survived by his widow and one son, Guy Emerson.

Dr. Noyes was of a reserved and dignified nature. He contributed more to the advancement of the medical science in Missouri than is known. One of his greatest services, though it is not generally known outside of Columbia and his profession, was the unabated interest

of Dr. Noyes, not only in the establishment of a hospital in Missouri for crippled children but his energetic efforts to maintain such a hospital in the face of great financial discouragement. Dr. Noyes never permitted his interest in this project to lag. There were times when there was no money in the treasury but somehow he managed to keep the little crippled fellows in the hospital and to continue adjustments and treatments of their broken little bodies. Dr. Noyes nourished a feeling of affection for these little patients that was akin to fatherliness. The time will come in the history of Missouri when the more than 13,000 crippled children will be taken care of in a great state hospital in memory of Dr. Guy L. Noyes, whose efforts were responsible for the establishment of the little hospital which now exists and has existed for several years because of his ability to surmount all obstacles which arose to hamper the progress of this institution.

Another outstanding service rendered by Dr. Noyes to his fellow men, was the establishment of the student health service in the University, a service which takes care of all students at a price so nominal that it is negative.

The medical school of the University and the University Hospital have both developed under his direction.

#### Resolutions by Boone County Medical Society

At a meeting of the Boone County Medical Society on February 5, the following resolutions were adopted in memory of Dr. Noyes:

WHEREAS, Our friend, former president, and confrere, Dr. Guy Lincoln Noyes, has been taken from us by death; and

WHEREAS, The members of the Boone County Medical Society here assembled in a memorial meeting for Dr. Noyes testify to the ability, integrity, and ethics of his professional life; and

WHEREAS, He was a credit to his profession, an asset to the educational institution he so loved and served, and an esteemed member of his community, active in professional and civic affairs of local or state import; and

WHEREAS, He was a follower of a flag of his own election,—that of his own ideals, a man of personal convictions that were carried to the degree of idealism; and

WHEREAS, He belonged to that group of men responsible for the high place his profession holds in the hands of the people; and

WHEREAS, He was a gentleman by inheritance and instinct; it naturally followed that his daily relationships with patients and fellow men would be characterized by tact, consideration and kindness; and

WHEREAS, A faithful, honorable, public-spirited, high-minded physician and citizen has been lost, therefore be it

*Resolved*, That in the death of Dr. Noyes, his profession has sustained a real loss. Friend and colleague mourn him dead, and be it further

*Resolved*, That we deeply regret his passing, and

we tender to his bereaved wife and son our sincere sympathy, and be it further

*Resolved*, That this record of our Memorial be placed upon the records of our Society, a copy be presented to the widow and son of Dr. Noyes, a copy be supplied THE JOURNAL OF THE MISSOURI STATE MEDICAL ASSOCIATION, and the two local daily newspapers.

M. PINSON NEAL, M.D.  
F. G. NIFONG, M.D.  
R. S. BATTERSBY, M.D.  
F. C. SUGGETT, M.D.  
Committee.

#### Resolutions by Board of Curators

The Board of Curators of the University, at a meeting in Kansas City February 8, named the University Hospital, the Noyes Hospital, in memory of Dr. Noyes, and adopted the following resolutions:

WHEREAS, In His infinite wisdom the Supreme Being has called from this life Guy Lincoln Noyes, who for twenty-eight years capably and unselfishly served the University of Missouri, its students, the community and state, as physician, director of the University hospitals and dean of the faculty of medicine, therefore be it

*Resolved*, That the Board of Curators in partial realization of the loss to society of this altruistic, benevolent and chivalrous gentleman, express their admiration and appreciation of his services to the University and mankind and their deep sorrow at his death, and be it further

*Resolved*, That this memorial be spread upon the official minutes of the Board and that a copy of it be sent to the members of his family.

#### L. ABRAHAM SHAFER, M.D.

The dean of medicine in Platte County is dead. Dr. L. Abraham Shafer, Edgerton, who long has been known as Dr. Abe, was stricken Christmas morning, while enjoying the season's festivities about the family Christmas tree surrounded by his entire family. He had made his usual visits the day before, his last call at midnight. He was 81 years of age.

Dr. Shafer was born near Smithville, Missouri, May, 1848, and went to sleep and his spirit took its flight January 5, 1930, after having practiced nearly fifty-four years. Dr. Abe graduated from the Missouri Medical College (now Washington University School of Medicine) St. Louis, in 1876. He began practice at Liberty with Dr. J. M. Allen. After a few years he moved to Randolph, and in 1882 to Edgerton where he resided and practiced his profession to the day of his death. In 1883 he assisted in the reorganization of the Platte County Medical Society, and ever retained his membership. He became its president in 1925, and so continued during the remainder of his lifetime, steadfastly refusing to be placed upon the Honor Roll, preferring to assist in carrying its burdens as an active member.

Dr. Abe was ever true to the ideals and traditions of medicine. He was ethical and his was a life of service to mankind. It is said he never sent a bill for services, maintaining that those of his patients who were able would pay him and that those who were unable were worthy of his charity. A man must be highly esteemed to so live. He was greatly beloved in the community of Edgerton, as a physician and a citizen. He was active in the civic betterment of his town, and his advice was often sought in matters nonmedical.

In the death of Dr. Shafer the Platte County Medical Society has lost its most valuable and beloved member, his family a devoted husband and father, and Edgerton a most valuable citizen. We greatly honor his memory.

WILSON MURRAY,  
SPENCE REDMAN,  
JOS. M. HALE.

#### EDMUND ADAM BABLER, M.D.

Dr. Edmund A. Babler, St. Louis, a graduate of Missouri Medical College, St. Louis (now Washington University School of Medicine), 1898, died February 9, 1930, of pneumonia contracted after a paralytic stroke, aged 54.

Dr. Babler was a Fellow of the American Medical Association, a member of the St. Louis Medical Society, and a member of the Western Surgical Association. He specialized in surgery and was surgeon at the Deaconess Hospital. Following graduation he spent several years in Eastern hospitals studying surgery, then returned to St. Louis where he remained until his death.

#### CHARLES ALBERT HINSON, M.D.

Dr. Charles A. Hinson, Kahoka, a graduate of Keokuk Medical College, College of Physicians and Surgeons, 1904, died February 1, 1930, aged 62.

Dr. Hinson practiced in Revere for nine years after graduation, then located in Kahoka where he practiced until his death. He was a member of the Clark County Medical Society.

#### ARTHUR CHARLES LEONARD, M.D.

Dr. Arthur C. Leonard, Kansas City, Missouri, a graduate of the Chicago Homeopathic Medical College, 1896, died of heart disease, December 22, 1929, aged 55.

Dr. Leonard was a member of the Jackson County Medical Society and the American Medical Association. He specialized in eye, ear, nose and throat work.



## FRANCIS CLEMONT HOWARD

Dr. Francis C. Howard, St. Louis, a graduate of Washington University School of Medicine, 1919, died suddenly of heart disease, January 12, 1930, aged 35.

Dr. Howard was formerly of Fayette, Missouri. He was an instructor in the ear, nose, and throat department of Washington University Medical School, and assistant laryngologist in Barnes and the St. Louis Children's hospitals. He interned in Barnes Hospital in 1920 and 1921. Dr. Howard had been a member of the St. Louis Medical Society since 1927.

## WILLIAM ALBERT SHELTON, M.D.

Dr. William A. Shelton, Kansas City, Missouri, a graduate of the University Medical College of Kansas City, 1904, died October 21, 1929, aged 51.

Dr. Shelton specialized in surgery and was on the staffs of Kansas City General Hospital and Research Hospital. He was also Police Surgeon in Kansas City. Dr. Shelton was a Fellow of the American Medical Association, a Fellow of the American College of Surgeons and a member of the Jackson County Medical Society.

## EDWARD FRANKLIN MARTIN, M.D.

Dr. Edward F. Martin, Corder, Missouri, a graduate of Missouri Medical College (now Washington University School of Medicine) St. Louis, 1884, died January 19, 1930, aged 73.

Dr. Martin was born in Osage County, Missouri, in 1857. Following his graduation he began his practice in Corder where he remained until his death.

LEWIS CARTHRAE, JR., M.D.

## CORRESPONDENCE

## GREATEST PROBLEM OF THE INTERNIST

Kansas City, Mo., January 23, 1930.

Dr. Logan Clendening,  
934 Argyle Building,  
Kansas City, Missouri.

Dear Logan:

I do not know when I have enjoyed any of your articles so much as "The Greatest Problem of the Internist" in the January number of the *MISSOURI STATE MEDICAL JOURNAL*.

You cite the common and interesting "neurotic" who has seen all the city specialists, but you fail to mention her small-town family physician who has forgotten more about the patient than the city doctors ever found out. Why didn't Mrs. A. go to

her small-town doctor? Simply because he knew Mrs. A's mother, grandmother, aunts, uncles, sisters, brothers; and she knew that he knew what was the matter with her without operations, X-rays, B.M.R., or two-hour psycho-analytic conversations, (I refer you to Clendening's "The Human Body" pp. 264-265).

I often wonder, with a certain sense of angry embarrassment, just what Mrs. A. thinks of me after I have told her that she has infected tonsils and that I shall recommend to her internist that they be removed. Especially is this embarrassing when the internist interrupts me in my report by proudly stating he has already advised Mrs. A. that "Those rotten tonsils are the cause of her toxic labyrinthitis, and they must come out."

Then Mrs. A., seeing herself cornered, in self-defense confides to me that her nausea, dizziness, headaches, neuritis, lackaches, etc., etc., were all brought on by the fact that she has just discovered that her husband, after twenty years of happy married life, is carrying on a clandestine love affair with a blonde! The old fool! Who? Me, the blonde, or the husband? Certainly not Mrs. A.

Never having lived or practiced in a small town it is impossible for you to get the small-town viewpoint. And, if you noticed, most of the Mrs. A. types are the more prosperous of small-town people who have either moved to the city, or have no confidence in the small-town home doctor. They go to the city to see the "specialists" or to go "through a clinic" for a complete examination, i. e., X-ray, colonic flushings, psychoanalysis, B.M.R., stomach analysis, etc., etc. After all, the people and not the doctors decide what they (the people) want. As I see it, medicine is more than a fad. It is a luxury, and luxuries are, with most of us, a prime necessity.

Chic Sale, one of your well known fellow authors, has recently classified Mrs. A. Her type is so common that even the laymen recognize her.

I also disagree with your summary; the patients, i. e., the chronic invalids, are not important. They are not badly treated and the kind of public criticism which they bring upon us probably does us more good than harm. If these patients are important, to whom are they important? Perhaps they are important in filling those long intervals of time between appointments for the young internist.

The type of treatment, i. e., light therapy, vaccines, serums, colonic irrigations, X-rays, etc., such as most of them get, can do them no harm, and, to say the least, is highly entertaining to them. Besides it gives their moronic minds something to think about and is great gossip at the bridge table.

As for criticism, don't you think Mr. A. knows what it is all about, and he knows that the internist knows that he knows? The fact that Mr. A. pays for it by the tenth shows that he is satisfied. Why try to spoil the fun, Logan?

If, as you state, this is the greatest problem of the internist, then the internist himself is not far from the Mrs. A. type.

Sincerely yours,

(Signed) O. JASON DIXON, M.D.

P. S. Mrs. A. was also a real patient whom I saw last week.

## SOCIETY PROCEEDINGS

### COUNTY SOCIETY HONOR ROLL FOR 1930

(UNDER THIS HEAD WE LIST SOCIETIES WHICH  
HAVE PAID DUES FOR ALL THEIR MEMBERS)

#### HONOR ROLL

Mercer County Medical Society, December 12, 1929.

Madison County Medical Society, December 16, 1929.

Benton County Medical Society, January 8, 1930.

Pulaski County Medical Society, January 11, 1930.

Webster County Medical Society, January 24, 1930.

Chariton County Medical Society, January 27, 1930.

### MISSOURI STATE MEDICAL ASSOCIATION 73D ANNUAL SESSION

Hannibal, May 12, 13, 14, 15, 1930

#### PRELIMINARY PROGRAM

##### Guest

Morgan, William Gerry, Washington, D. C., President-Elect, American Medical Association: Title to be announced.

##### Symposiums

Symposium on Gynecology and Obstetrics:

Schwartz, Otto H., St. Louis: Puerperal Infection.

Crossen, H. S., St. Louis: Selective Surgery in Uterine Prolapse.

Kyger, Fred B., Kansas City: Title to be announced.

Hanna, Minford A., Kansas City: Title to be announced.

Symposium on Abdominal Surgery:

Hyndman, C. E., St. Louis: Traumatic Lesions of the Abdomen.

Fisher, A. O., St. Louis: Some Unusual Abdominal Conditions.

Owens, M. J., Kansas City: Intestinal Obstruction.

Irland, Robert D., Kansas City: Early Stages of Gallbladder Disease.

Symposium on Contagious Diseases:

Bleyer, Adrien, St. Louis: Prevention of Diphtheria.

Zahorsky, John, St. Louis: Diagnosis of Diphtheria.

Rohlfing, E. H., St. Louis: Treatment of Diphtheria.

Gilkey, Harry M., Kansas City: Prevention and Treatment of Scarlet Fever.

Symposium on Chest Diseases in Childhood:

Summers, Caldwell B., Kansas City: Acute and Chronic Bronchitis.

Hempelmann, T. C., St. Louis: Pulmonary and Tracheobronchial Gland Tuberculosis in Childhood.

Walthall, D. O., Kansas City: Medical Treatment of Empyema.

Montgomery, James G., Kansas City: Surgical Treatment of Empyema.

#### Scientific Papers

Aull, John, Kansas City: Title to be announced.  
Bartlett, Willard, St. Louis: A Modern Conception and Plan of Anesthesia.

Bell, Howard H., St. Louis: Allergy and Immunity in Tuberculosis; Illustrated with Lantern Slides.

Black, Donald R., Kansas City: Circulatory Disturbances in Diabetes.

Brown, James Barrett, St. Louis: Title to be announced.

Burford, C. E., St. Louis: Further Observations on Nephropexy and Ureteroplasty for Relief of Urinary Obstruction and Pain.

Campbell, Frederick B., Kansas City: Title to be announced.

Carroll, Grayson, St. Louis: Urinary Bladder Obstruction Not Due to Prostatic Hypertrophy.

Clasen, Arthur C., Kansas City: Obesity and Leanness, Classification and Management.

Coughlin, W. T., St. Louis: Sympathectomy.

Deweese, E. R., Kansas City: Title to be announced.

Elliott, James R., Kansas City: Title to be announced.

Fischel, Ellis, St. Louis: Treatment of Cancer of the Tongue.

Gallagher, W. J., St. Louis: Primary Carcinoma of the Fallopian Tube.

Hanser, Theodore H., St. Louis: Toxic Goiter: Early Symptoms, Diagnosis, Treatment.

Klinefelter, M. L., St. Louis: Fractures Involving the Elbow.

Lonsway, M. J., St. Louis: The Underfed Infant.

McMahon, B. J., St. Louis: Significance of Systemic Manifestations of Paranasal Infection.

McVay, James R., Kansas City: Bilateral Stones in the Kidney.

Mercer, C. Wilbur, Kansas City: Orthopedics.

Narr, Frederick C., Kansas City: Title to be announced.

O'Keefe, Chas. D., St. Louis: Title to be announced.

Robinson, Jr., G. Wilse, Kansas City: Hemiplegia; Its Causes and Treatment.

Sexton, D. L., St. Louis: Endocrinology: Its Application in General Practice.

Snider, Sam, Kansas City: The Indication for Artificial Pneumothorax in Tuberculosis; Illustrated with Lantern Slides.

Thompson, Jr., J. W., St. Louis: Duodenal Ulcer: Surgical Treatment with Case Reports.

Vinyard, Robert, St. Louis: Spinal Anesthesia in Bladder Surgery; Report of Cases.

Young, Willis B., St. Louis: Coexistent Gallbladder, Renal and Ureteral Stones.

### BUCHANAN COUNTY MEDICAL SOCIETY

The Buchanan County Medical Society met at the Missouri Methodist Hospital, St. Joseph, January 22, 1930.

Dr. C. H. Wallace, Jr., St. Joseph, read a paper on "Observations on Spinal Anesthesia Based on Reports of 715 Cases." Three different preparations were used in these cases,—apothesine, novocaine, and spinocaine, and many varieties of operations were performed in the series. There were no mortalities directly attributed to the anesthesia. Ninety per cent of the injections were made with the patient in the sitting posture and after injections they were immediately placed in the Trendelenburg position. No patients with a systolic blood pressure below 110 were given this type of anesthesia. Nausea and



vomiting occurred in some cases which were best relieved by inhalation of oxygen. At the present time spinothane (formula suggested by Dr. George Pitkin) is being used, Dr. Wallace said. This solution usually becomes effective in five minutes or less. Ephedrine has proved a highly important aid to spinal anesthesia, as blood pressure can be controlled by this drug. Spinal anesthesia gives perfect relaxation, peristalsis is stimulated and there is no injury to the parenchymatous organs of the body. Individuals with renal disease, respiratory diseases and metabolic disorders are particularly suited for this type of anesthesia, Dr. Wallace pointed out.

The paper was discussed by Drs. Paul Forgrave, J. I. Byrne, C. H. Wallace, Sr., Earl Senor, W. T. Stacy and E. A. Gummig, of St. Joseph. Dr. Byrne called attention to the fact that spinal anesthesia has its limitations; it should not be used in every case, but reserved for selected cases.

Another paper was read by Dr. Gaylord T. Bloomer, St. Joseph, on "Surgical Treatment of Pulmonary Tuberculosis." Certain types of operation in properly selected cases have shown approximately 66 per cent cures or marked improvement in far advanced cases in which all other methods of treatment failed to benefit, Dr. Bloomer said. This type of treatment is quite popular with the surgeons of continental Europe. It is also used in some of the tuberculosis sanatoriums in the United States.

It was pointed out that types of operation which have been most useful and most generally employed in the attainment of these results have been extrapleural and paravertebral thoracoplasty. The purpose of operations in the treatment of pulmonary tuberculosis is to put the diseased lung at rest. It is contraindicated in bilateral pulmonary tuberculosis because putting a part or the whole of one lung at rest throws the burden of respiration on the other diseased lung.

It is usually agreed that no case should be subjected to surgery of any type unless medical treatment of the generally approved order, preferably in a modern tuberculosis sanatorium, has resulted in no improvement, or the improvement has become stationary and all conditions indicate no further improvement. The average case suitable for operation is one in which proper medical treatment combined with artificial pneumothorax has been unable to cure or arrest the disease, Dr. Bloomer concluded.

This paper was discussed by Drs. E. M. Shores, G. A. Lau, C. H. Wallace, M. Gillis and J. Kangisser, of St. Joseph.

W. T. STACY, M.D., Secretary.

#### COOPER COUNTY MEDICAL SOCIETY

At the regular meeting of the Cooper County Medical Society held at St. Joseph's Hospital, Boonville, January 24, 1930, the following officers were elected for 1930: President, Dr. C. H. Van Ravenswaay, Boonville; vice president, Dr. G. A. Russell, Boonville; secretary-treasurer, Dr. T. C. Beckett, Boonville; delegate, Dr. R. Q. Kelly, Bunceton; alternate, Dr. W. H. Ziegler, Pilot Grove.

Drs. A. W. Nelson and O. W. Cochran, of Boonville, were continued as honorary members.

The Society meeting was followed by a meeting of the St. Joseph's Hospital staff.

T. C. BECKETT, M.D., Secretary.

#### HENRY COUNTY MEDICAL SOCIETY

The Henry County Medical Society met in the county court room at Clinton, December 31, 1929, with Dr. J. J. Russell, Deepwater, in the chair. The following members were present:

Drs. J. R. Hampton, E. C. Peelor, G. S. Walker and S. W. Woltzen, of Clinton, and Dr. J. J. Russell, Deepwater. The minutes of the last meeting were read and approved.

On motion, Dr. James R. Wallis, Clinton, was elected an Honor Member.

The following officers were elected for 1930: President, Dr. R. J. Jennings, Windsor; vice president, Dr. J. R. Hampton, Clinton; secretary-treasurer, Dr. S. W. Woltzen, Clinton; delegate, Dr. R. D. Haire, Clinton.

S. W. WOLTZEN, M.D., Secretary.

#### JASPER COUNTY MEDICAL SOCIETY

The Jasper County Medical Society met at Joplin, January 14, 1930. The meeting was called to order at 8:00 p. m. by the president, Dr. C. T. Reid, Joplin. The minutes of the last meeting were read and approved.

The matter of sponsoring the public and personal health booth at the Boy Scout Merit Badge Exhibit to be held in March was considered. After some discussion, Dr. J. W. Barson, Joplin, moved that the Society sponsor this booth and the treasurer be instructed to issue check to cover the expenses. The motion was seconded by Dr. L. W. Baxter, Joplin, and carried.

The scientific program was limited to a paper by Dr. T. G. Orr, Kansas City, the subject of which was "Diagnosis and Treatment of Gallbladder Disease." The discussion on Dr. Orr's paper was opened by Dr. A. M. Gregg, Joplin, and the general discussion which followed was spirited and instructive.

The meeting adjourned at 10:00 p. m.

#### Meeting of January 21, 1930

The president, Dr. C. T. Reid, Joplin, called the meeting to order at 8:00 p. m. There were twelve members and two visitors present. The minutes of the last meeting were read and approved.

Dr. L. W. Baxter, Joplin, presented the report of the Committee on Crippled Children regarding the care of indigent crippled children. He announced that a free clinic will be held the second week in April, conducted by an out-of-town physician who will act merely in an advisory capacity. Another report will be heard later.

The scientific program was opened with case reports.

Dr. S. A. Grantham, Joplin, then gave a talk on his method of spine fixation. He briefly reviewed some of the other methods and gave in detail the technic of his own operation. He presented a motion picture of a patient before operation, the operative procedure, and the postoperative result which was most gratifying.

There was a small, but sympathetic group present who commented favorably on the subject.

It was suggested that because of Dr. Grantham's inherent modesty the Society take it upon itself to try to arrange for Dr. Grantham to present his paper at one or more of the larger clinical conferences in the near future.

#### Meeting of January 28, 1930

The meeting was called to order by the president, Dr. C. T. Reid, Joplin, with twenty-four members and three visitors present.

At the suggestion of Dr. W. S. Loveland, Joplin, a motion was made by Dr. Clark that the Society's meetings convene at 7:30 during the winter months. The motion was seconded by Dr. L. C. Chenoweth and unanimously carried.

The secretary, Dr. O. T. Blanke, Joplin, announced that Dr. T. W. Cotton, Van Buren, President of the State Association, Dr. W. C. Gayler, St.

Louis, President-Elect, and Dr. E. J. Goodwin, St. Louis, Secretary-Editor, would be present at our meeting of February 18.

The scientific program was presented by Dr. P. T. Bohan, internist, of Kansas City, whose subject was "Precordial Pain." The subject was discussed under subheads as follows: True angina pectoris; Aortic pain; Pseudo-angina pectoris; Cardiac fatigue; Radicular syndrome; Coronary occlusion.

The subject was exhaustively and interestingly presented and was freely discussed by Drs. J. W. Barson, R. E. Myers, L. B. Clinton, L. C. Chenoweth, S. H. Miller and Dr. Clark.

O. T. BLANKE, M.D., Secretary.

### JOHNSON COUNTY MEDICAL SOCIETY

The Johnson County Medical Society met at Warrensburg, January 21, 1930. The annual election of officers was held, which resulted in the following being elected to serve during this year: President, Dr. W. G. Thompson, Holden; vice president, Dr. John A. Powers, Warrensburg; secretary, Dr. T. J. Draper, Warrensburg; board of censors, Dr. E. Y. Pare, Leeton (term expires, 1931); Dr. J. E. Porter, Knobnoster (term expires, 1932); Dr. H. F. Parker, Warrensburg (term expires, 1933); delegate, Dr. W. E. Johnson, Warrensburg.

T. J. DRAPER, M.D., Secretary.

### LACLEDE COUNTY MEDICAL SOCIETY

At the January 6 meeting of the Laclede County Medical Society held at Lebanon, the following officers were elected for 1930: President, Dr. J. M. Billings, Lebanon; vice president, Dr. H. A. Hamilton, Lebanon; secretary-treasurer, Dr. J. A. McComb, Lebanon.

J. A. McComb, M.D., Secretary.

### MEDICAL ASSOCIATION, MISSOURI PACIFIC LINES

On January 30, 1930, in the City of St. Louis, there was organized the Medical Association of the Missouri Pacific Lines. There were present at this inaugural meeting about 400 surgeons connected with the railroad in various capacities. The successful meeting was due to the hearty cooperation of the president of the Missouri Pacific Lines, Mr. L. W. Baldwin, and his associates; and Mr. H. J. Mohler, president of the Missouri Pacific Association, and the chief surgeon, Dr. O. B. Zeinert, St. Louis.

It is proposed that this organization shall in the future meet once a year and during the sessions much will be discussed which it is believed will operate toward a more efficient service from a medical standpoint. Further than this an organization of this description, composed as it is of men prominent in their communities will add to the achievements of the railroad itself. The Missouri Pacific Lines are characterized by a feeling of mutual desire to promote railroad service as well as the medical care of its employees. It is the hope of this association to form a committee on hygiene and preventive medicine, with research facilities to make it quite worth while.

The meeting was called to order by Dr. O. B. Zeinert, chief surgeon. At that time he expressed his views as to the object of the organization and gave the assembled surgeons a most hearty welcome.

In the absence of Mr. L. W. Baldwin, president, Missouri Pacific Lines, who was on a business trip at the time of the meeting, Mr. John Cannon, vice president and general manager, made a felicitous

and happy talk which was warmly applauded. He stressed the desire and willingness on the part of the railroad to cooperate with this new organization. He was followed by Mr. H. J. Mohler, president of the Missouri Pacific Hospital Association, who had prepared a most interesting, concise and illuminating paper, indicating the extent and work accomplished by the Hospital Association. Dr. John Stewart, acting for the president of the St. Louis Medical Society, Dr. V. P. Blair, extended to the organization a welcome and offered the use of the St. Louis Medical Society building and its accessories. Short addresses were made by Mr. E. J. White, vice president and general solicitor, and Mr. F. P. Johnson, vice president, Missouri Pacific Railroad Company. Following this the constitution and by-laws of the organization were adopted and a permanent organization went into effect. Dr. O. B. Zeinert was unanimously elected as its first president. This was followed by the election of the executive committee which consists of the following members: Dr. W. F. Smith, Little Rock, Ark., Dr. J. E. Castles, Kansas City, Mo., Dr. H. Unterberg, St. Louis, and Dr. C. A. Vosburgh, St. Louis. Dr. John L. Evans, Wichita, Kan., was elected first vice president, and Dr. H. L. Kerr, Crane, Mo., was elected second vice president. Dr. H. J. Scherck, St. Louis, was appointed secretary and treasurer.

Two papers were read in the forenoon, one by Dr. E. P. North, St. Louis, on "Eye Injuries and Their Relationship to the Local Surgeon"; the second paper by Dr. Warren P. Elmer, St. Louis, on the "Medical Treatment of Missouri Pacific Employees." After this the president, Dr. O. B. Zeinert, invited all the members to adjourn to the medical society banquet hall to accept the hospitality of the Missouri Pacific Hospital Association and the railroad and partake of a complimentary luncheon.

Reassembling at 2:00 p. m., the following program was carried out; each address was followed by an active and constructive discussion:

"The Use of Moist Heat in Various Traumatisms," by Dr. Jabez N. Jackson, consulting surgeon, Missouri Pacific Hospital Association, Kansas City, Mo.

"Skull Fractures; Diagnosis and Treatment," by Dr. H. Unterberg, St. Louis.

"Acute Surgical Abdomen," by Dr. John L. Evans, Wichita, Kan.

"The Relationship of the Laboratory to the Hospital," by Dr. Ralph L. Thompson, St. Louis.

"Shock," by Dr. James Q. Graves, Monroe, La.

"Section of the Anterolateral Tract of the Spinal Cord for the Relief of Unbearable Pain," by Dr. W. E. Leighton, St. Louis.

"Prostatectomy" (motion picture demonstration), by Dr. H. J. Scherck, St. Louis.

At 7:00 p. m. the members were tendered a banquet at the Coronado Hotel, as guests of the Missouri Pacific Lines and the Missouri Pacific Hospital Association. Dr. Zeinert introduced the toastmaster of the evening, Mr. E. H. McReynolds, who in his usual happy vein introduced Mr. H. J. Mohler, who called the attention of those assembled to men who had been particularly active in the hospital association. The speaker of the evening was then introduced. A man who is nationally known and who proved to be most interesting and entertaining, and held the audience throughout the entire address, Mr. Victor Murdock, editor and publisher *Wichita Eagle*, Wichita, Kansas.

The following morning, January 31, through the courtesy and cooperation of the various hospitals, interesting clinics were scheduled complimentary to



the Missouri Pacific surgeons, which were all well attended. It is noteworthy to mention that there exists in the City of St. Louis today a most distinct feeling of cooperation which can only effect good results in the various hospitals, and which was a sincere compliment to the high standing in which the Missouri Pacific Hospital is held by the leading hospitals of the city.

In the afternoon the following program was successfully carried out and each paper called for an interesting and constructive discussion:

"The Relationship of the Railroad Surgeon to the Claim and Legal Departments," by Dr. W. F. Smith, Little Rock, Ark.

"The Use of Birkhang's Antitoxin in the Treatment of Erysipelas," by Dr. Paul F. Stookey, Kansas City, Mo.

"The Inguinal Route Operation for Femoral Hernia," by Dr. M. G. Seelig, St. Louis.

"Fractures," Dr. J. Edgar Stewart, St. Louis.

"Amputations," Dr. C. A. Vosburgh, St. Louis.

"Oto-Laryngological Complications," Dr. S. B. Westlake, St. Louis.

"Fractures of the Jaw," Dr. Louis Renfrow, St. Louis.

"Hoarseness," Dr. W. G. Patton, St. Louis.

"The Use of Sodium-Amytal Intravenously as an Anesthetic Agent," Dr. I. H. Boemer, St. Louis.

"Gastric Ulcer," Dr. J. W. Larimore, St. Louis.

"Infection," Dr. A. O. Fisher, St. Louis.

"Treatment of Vaginal Discharges," Dr. Geo. Gellhorn, St. Louis.

The next meeting of the association will be held in January, 1931, the exact date and place to be decided by the executive committee.

H. J. SCHERCK, M.D., Secretary.

## RANDOLPH-MONROE COUNTY MEDICAL SOCIETY

The Randolph-Monroe County Medical Society met at Moberly, December 10, 1929. The election of officers for 1930 resulted in the following being elected: President, Dr. L. O. Nickell, Moberly; vice president, Dr. H. C. Griffiths, Moberly; secretary-treasurer, Dr. T. S. Fleming, Moberly; delegate, Dr. C. H. Dixon, Moberly; alternate, Dr. F. L. McCormick, Moberly; board of censors, Dr. C. K. Dutton, Moberly (term expires, 1932); Dr. O. O. Ash, Moberly (term expires, 1933).

Dr. D. A. Barnhart, Huntsville, Councilor for the Tenth District, gave a detailed report of the Councilors' meeting at Columbia on December 9, 1929.

### Meeting of January 14, 1930

At the meeting of January 14 there were fourteen physicians present.

Dr. M. R. Noland, Moberly, read an interesting paper on "Etiology of Peptic Ulcer," which was fully discussed.

The meningitis situation in the two counties was considered. Up to the present time there have been four cases reported with one fatality.

T. S. FLEMING, M.D., Secretary.

## ST. FRANCOIS-IRON COUNTY MEDICAL SOCIETY

The St. Francois-Iron County Medical Society met January 28, 1930, at State Hospital No. 4, Farmington. We had as our guests Drs. M. A. Bliss, Carl A. Powell and John W. Stewart, of St. Louis. Drs. Powell and Stewart furnished the scientific program through the courtesy of the Postgraduate Committee of the State Association.

The application of Dr. Charles H. Appleberry was

reported favorable and Dr. Appleberry was elected to membership. The Doctor, a son of Dr. Reuben Appleberry, Farmington, is serving his internship at the Missouri Baptist Hospital in St. Louis and expects to start practice at Flat River in July.

Dr. Carl A. Powell, St. Louis, gave us a splendid talk on "Blood Pressure."

Dr. John W. Stewart, St. Louis, read an instructive paper on "Skull Fracture."

Both papers were discussed by several members. It was decided to follow the custom of previous years and suspend Society meetings during February and March.

RALF HANKS, M.D., Secretary.

## ST. LOUIS MEDICAL SOCIETY

### Annual Meeting of General Society

January 7, 1930

The meeting was called to order at 8:45 p. m. by the president, Dr. Cleveland H. Shutt.

An address was given by Dr. C. H. Shutt, as retiring president.

The following delegates to the State Medical Association and officers of the Society were installed:

Delegates: Drs. Howard H. Bell, Joseph C. Peden, Edwin C. Funsch, R. B. H. Gradwohl, Wm. J. Gallagher, Robert Vinyard, Theodore H. Hanser, Herluf C. Lund, Claude D. Pickrell, Joseph E. Glenn.

Councilors: Drs. Cleveland H. Shutt, Hillel Unterberg, Harry M. Moore, C. F. Pfingsten.

Secretary: Dr. Herbert S. Langsdorf, reelected.

Second vice president: Dr. Charles F. Sherwin, escorted to the rostrum by Drs. Hudson Talbott and Walter E. Hennerich.

First vice president: Dr. John W. Stewart, escorted by Drs. Joseph C. Peden and George J. Epp.

After the installation of the other officers and the delegates, the newly elected president, Dr. Vilray Papin Blair, was escorted to the rostrum by Drs. Amand Ravold and Roland Hill and was duly installed to the office of president. Dr. Blair read his inaugural address entitled "Our Opportunity."

At the conclusion of Dr. Blair's address the meeting adjourned to the banquet hall for the president's reception, refreshments and dancing.

Attendance 300.

### Meeting of January 14, 1930

#### Annual Hodgen Lecture Evening

The meeting was called to order at 8:40 p. m. by the first vice president, Dr. John W. Stewart.

Dr. Francis Reder, president of the St. Louis Surgical Society, was asked to preside and make a few remarks concerning the pioneers of medicine and surgery in St. Louis.

Dr. M. B. Clopton introduced the speaker of the evening, Dr. Dallas B. Phemister, Chicago, who gave the Hodgen Lecture, his subject being "The Etiology and Treatment of Some of the Circulatory Failures in Surgery," illustrated with lantern slides.

Attendance 224.

HERBERT S. LANGSDORF, M.D., Secretary.

## WOMAN'S AUXILIARY

### OFFICERS 1929-30

President, Mrs. M. P. Ravenel, Columbia.

President-Elect, Mrs. A. W. McAlester, Kansas City.

1st Vice President, Mrs. U. J. Busiek, Springfield.

2nd Vice President, Mrs. James F. Owens, St. Joseph.

3rd Vice President, Mrs. H. C. Brashear, Mexico.

4th Vice President, Mrs. L. G. McCutchen, St. Louis.

Corresponding Secretary, Mrs. C. M. Sneed, Columbia.

Recording Secretary, Mrs. David S. Long, Harrisonville.

Treasurer, Mrs. R. C. Haynes, Marshall.

Auditor, Mrs. C. T. Ryland, Lexington.

Directors (2 years): Mrs. W. W. Ford, Gordonville; Mrs. Harry F. Parker, Warrensburg; Mrs. F. H. Spencer, St. Joseph; Mrs. C. C. Cummings, Joplin; Mrs. Raymond Spivy, St. Louis. (1 year): Mrs. T. S. Fleming, Moberly; Mrs. S. F. Freeman, Springfield; Mrs. Robert McE. Schauffler, Kansas City; Mrs. Hudson Talbott, St. Louis; Mrs. J. J. Gaines, Excelsior Springs.

### SCHOLARSHIP FUND

Total Receipts, January, 1930.....	\$204.10
Buchanan County Auxiliary.....	\$35.20
Boone County Auxiliary (gift).....	20.00
	<hr/> 55.20
	<hr/> \$259.30

### Disbursements

Mr. Schmidtke, September 17, 1929..	\$150.00
Mr. Schmidtke, January 17, 1930....	100.00
	<hr/> 250.00

Balance on hand .....\$ 9.30

### Acknowledgment by Mr. Schmidtke

St. Louis, Mo., January 25, 1930.

My dear Mrs. Haynes:

Received the check for one hundred dollars a few days ago. I wish to take this opportunity to thank you and the other members of the Woman's Auxiliary to the Missouri State Medical Association for the financial assistance. I appreciate their interest in me more than is possible for me to express at this time. I only hope that my future achievements will be such as to express my appreciation. . . .

Sincerely,  
(Signed) Edwin Schmidtke.

### BOONE COUNTY AUXILIARY

The Woman's Auxiliary to the Boone County Medical Society has elected the following officers to serve during 1930: President, Mrs. E. D. Baskett, Columbia; secretary, Mrs. F. C. Suggett, Columbia; treasurer, Mrs. C. M. Sneed, Columbia.

### ST. LOUIS CITY AUXILIARY

The Woman's Auxiliary to the St. Louis Medical Society gave an afternoon bridge party on Wednesday, February 5, for the benefit of the Scholarship Fund. Mrs. Clarence Martin was in charge and was ably assisted by Mrs. Carroll Smith and a corps of willing workers who served light refreshments. The prizes were varicolored bath salts in attractive containers. The affair was a great financial success as well over \$100 was cleared, far exceeding expectations.

The Auxiliary is fortunate in having the beautiful banquet hall of the new medical society building in which to hold their bridge parties. The Auxiliary furnished the kitchen, bought the china, silverware, tables, linens, etc., needed for serving as many as 200.

The Auxiliary is planning a George Washington dinner for Tuesday, February 25. The hour is set

for from 6:30 to 7:30 to allow for varying office hours. After dinner the doctors will adjourn to the auditorium for a scientific program and the women will remain for a social evening. These dinners have been extremely popular in the past.

MRS. H. McCLURE YOUNG.

## MISCELLANY

### MEDICAL PUBLICITY BUREAU— A CORRECTION

In this department of THE JOURNAL, January, 1930, there was published an article on the Medical Publicity Bureau in which the name of Dr. William J. Robinson, New York, was mentioned as being connected with the Bureau. Since publishing the report, Dr. Robinson has sent conclusive evidence to the American Medical Association showing that "at no time has he been in any way connected with the Medical Publicity Bureau" and that "at no time has he held any stock in said Medical Publicity Bureau."

These facts are given in justice to Dr. Robinson and to THE JOURNAL.

## TRUTH ABOUT MEDICINES

### NEW AND NONOFFICIAL REMEDIES

**DIPHTHERIA TOXOID**—National.—A diphtheria toxoid (New and Nonofficial Remedies, 1929, p. 368) prepared from seven day cultures of the diphtheria bacillus that yield a toxin having an L+ dose of not less than 0.25 cc. The toxin is treated with formaldehyde. The finished product is tested for antigenic potency. The product is marketed in packages of three vials (one immunization treatment); in packages of one vial (fifteen immunization treatments); in packages of forty-five vials (fifteen immunization treatments). The National Drug Co., Philadelphia.

**SCARLET FEVER STREPTOCOCCUS**—Cutter.—A scarlet fever streptococcus antitoxin (New and nonofficial Remedies, 1929, p. 350) prepared by the method of Drs. Dick by license of the Scarlet Fever Committee, Inc. It is marketed in packages of one syringe containing 2,000 units, and in packages of one syringe containing 6,000 units. Cutter Laboratory, Berkeley, Calif.

**TYPHO-BACTERIN MIXED (Triple Vaccine TAB)**.—This product (New and Nonofficial Remedies, 1929, p. 380) is also marketed in packages of thirty 1 cc. vials, being ten immunizations of three doses each. H. K. Mulford Co., Philadelphia. (Jour. A. M. A., January 4, 1930, p. 31.)

**AMPULES SODIUM CACODYLATE**—Mulford,  $\frac{3}{4}$  grain, 1 cc.—Each ampule contains sodium cacodylate (New and Nonofficial Remedies, 1929, p. 73) 0.05 Gm. ( $\frac{3}{4}$  grain) in 1 cc. of sterile solution, with 1 per cent of benzyl alcohol. H. K. Mulford Co., Philadelphia.

**AMPULES SODIUM CACODYLATE**—Mulford, 3 grains, 1 cc.—Each ampule contains sodium cacodylate (New and Nonofficial Remedies, 1929, p. 73) 0.2 Gm. (3 grains) in 1 cc. of sterile solution, with 1 per cent of benzyl alcohol. H. K. Mulford Co., Philadelphia.

**CURDOLAC SOYA FLOUR**.—A flour prepared from the soya bean. It may be used for the preparation of foods in diets in which a relatively low carbohydrate content is desired. Curdolac Food Co., Waukesha, Wis.



**AMPULES SODIUM CACODYLATE**—Mulford, 5 grain, 1 cc.—Each ampule contains sodium cacodylate (New and Nonofficial Remedies, 1929, p. 73) 0.32 Gm. (5 grains) in 1 cc. of sterile solution, with 1 per cent of benzyl alcohol. H. K. Mulford Co., Philadelphia.

**ERYSIPELAS STREPTOCOCCUS ANTITOXIN** (Concentrated)—Mulford.—This product (New and Nonofficial Remedies, 1929, p. 349) is also marketed in packages of one 10 cc. syringe containing 500,000 protective units. H. K. Mulford Co., Philadelphia. (Jour. A. M. A., January 11, 1930, p. 105.)

**CURDOLAC CASEIN-BRAN IMPROVED FLOUR**—A flour prepared from casein, carbohydrate-free bran, and soya bean, to which leavening and flavoring have been added. It may be used for the preparation of muffins or bread having a comparatively low carbohydrate content and low food value, with bulk. Curdolac Food Co., Waukesha, Wis.

**CURDOLAC SOYA-BRAN FLOUR**—A flour prepared from soya bean and a starch-free bran with a leavening mixture. It may be used for the preparation of bread and muffins for use in diets in which a comparatively low carbohydrate content is desired. Curdolac Food Co., Waukesha, Wis.

**CURDOLAC BREAKFAST CEREAL**—A medicinal food prepared from soya beans blended with wheat products, including starch-free bran. It may be used as a hot food in diets in which a comparatively low carbohydrate content is desired. Curdolac Food Co., Waukesha, Wis.

**CURDOLAC CASEIN COMPOUND**—A flour prepared from casein, vegetable fiber and a leavening mixture to which sodium chloride and gluside are added. It may be used for the preparation of carbohydrate-free bread, muffins, cake, etc., for use in diets in which a relatively low carbohydrate content is desired. Curdolac Food Co., Waukesha, Wis.

**CURDOLAC WHEAT-SOYA FLOUR**—A flour prepared from soya beans, starch-free bran and a small proportion of wheat, with leavening and flavoring. It may be used for the preparation of muffins, cakes, waffles, etc., of well balanced food value for use in restricted diets. Curdolac Food Co., Waukesha, Wis.

**CURDOLAC SOYA-CEREAL JOHNNY CAKE FLOUR**—A flour prepared from soya beans and cereal products to which leavening and flavoring have been added. It may be used in the preparation of muffins, cakes, waffles, etc., for use in diets relatively low in carbohydrate, designed for those who cannot use products made with bran. Curdolac Food Co., Waukesha, Wis.

**CURDOLAC SOYA-BRAN BREAKFAST FOOD**—A medicinal food prepared from soya beans and a starch-free bran, to which has been added leavening, flavoring, gluside, and oils without food value. It may be used in diets in which a low carbohydrate content is desired. Curdolac Food Co., Waukesha, Wis. (Jour. A. M. A., January 18, 1930, p. 185.)

**INHALANT EPHEDRINE (Plain)**—Lilly.—A solution containing ephedrine—Lilly (New and Nonofficial Remedies, 1929, p. 166), 1 Gm.; cottonseed oil, 1 Gm., perfumed and tinted, liquid petrolatum to make 100 cc. Eli Lilly & Co., Indianapolis.

**HYPODERMIC TABLETS EPHEDRINE HYDROCHLORIDE**—Lilly, 0.016 Gm. ( $\frac{1}{4}$  grain).—Each tablet contains ephedrine hydrochloride—Lilly (New and Nonofficial Remedies, 1929, p. 168), 0.016 Gm. Eli Lilly & Co., Indianapolis.

**VIOSTEROL**—Abbott.—A brand of viosterol in oil 100 D, N. N. R. Abbott Laboratories, North Chicago, Ill.

**HYPODERMIC TABLETS EPHEDRINE HYDROCHLORIDE**—

Lilly, 0.0325 Gm. ( $\frac{1}{2}$  grain).—Each tablet contains ephedrine hydrochloride—Lilly (New and Nonofficial Remedies, 1929, p. 168), 0.0325 Gm. Eli Lilly & Co., Indianapolis.

**HYPODERMIC TABLETS EPHEDRINE SULPHATE**—Lilly, 0.016 Gm. ( $\frac{1}{4}$  grain).—Each tablet contains ephedrine sulphate—Lilly (New and Nonofficial Remedies, 1929, p. 169), 0.016 Gm. Eli Lilly & Co., Indianapolis.

**HYPODERMIC TABLETS EPHEDRINE SULPHATE**—Lilly, 0.0325 Gm. ( $\frac{1}{2}$  grain).—Each tablet contains ephedrine sulphate—Lilly (New and Nonofficial Remedies, 1929, p. 169), 0.0325 Gm. Eli Lilly & Co., Indianapolis.

**SYRUP No. 110 EPHEDRINE SULPHATE**—It contains ephedrine sulphate—Lilly (New and Nonofficial Remedies, 1929, p. 169), 0.22 Gm., in 100 cc. (1 grain per fluidounce) and alcohol 12 per cent; flavored and tinted. Eli Lilly & Co., Indianapolis.

**SYRUP No. 111 EPHEDRINE SULPHATE**—It contains ephedrine sulphate—Lilly (New and Nonofficial Remedies, 1929, p. 169), 0.44 Gm., in 100 cc. (2 grains per fluidounce), alcohol, 12 per cent; flavored and tinted. Eli Lilly & Co., Indianapolis.

**NEOCINCHOPHEN**—B. P. C.—A brand of neocinchophen—N. N. R. For a discussion of the actions, uses and dosage, see New and Nonofficial Remedies, 1929, p. 114. Benzol Products Co., Newark, N. J. (Jour. A. M. A., August 17, 1929, p. 524.)

**VIOSTEROL**—Investigators discovered that ergosterol when subjected to ultraviolet radiation, develops an antirachitic (vitamin D) potency enormously greater than that of cod liver oil. For therapeutic use the ergosterol after irradiation is usually dissolved in a vegetable oil. The Council on Pharmacy and Chemistry has adopted the term viosterol to designate irradiated ergosterol, and viosterol in oil to designate a preparation containing this substance dissolved in oil. The Council has also provisionally adopted the qualifying phrases 100 D, 5 D, etc., to designate the vitamin D potency of the various preparations as multiples of the vitamin D potency of good cod liver oil. Viosterol is for use in prophylaxis and treatment of rickets and, experimentally, in other conditions arising from faulty calcium and phosphorus assimilation. It should be borne in mind that viosterol does not contain vitamin A and that harm from hypercalcemia may result from the use of too large doses.

**VIOSTEROL IN OIL 100 D**—Viosterol dissolved in a vegetable oil and standardized to contain 1,333 rat units of vitamin D in each Gm., this strength being 100 times that of a potent cod liver oil used as a standard. The daily prophylactic dose for the average infant and child is 8 to 10 drops (0.1233 to 0.1666 cc.:  $2\frac{2}{3}$  to  $3\frac{1}{3}$  minims). The marketed preparations are accompanied by a dropper designed to deliver 3 drops to the minim.

**PARKE, DAVIS & Co.'s VIOSTEROL**—A brand of viosterol in oil 100 D, N. N. R. Parke, Davis & Co., Detroit.

**VIOSTEROL**—Squibb.—A brand of viosterol in oil 100 D, N. N. R. E. R. Squibb & Sons, New York.

**COD LIVER OIL WITH VIOSTEROL 5 D**—Viosterol dissolved in cod liver oil, the solution containing not less than 400 vitamin A units per Gm. when tested by the pharmacopeial method and 66.65 rat units of vitamin D per Gm., this antirachitic strength being five times that of a potent cod liver oil used as a standard. This product is proposed for use in conditions in which it is desired to supplement the administration of vitamin A with that of vitamin D. For infants and young children the dose is 2.5 to 3.3 cc. (53 to 67 minims) daily.

## BOOK REVIEWS

**LE MÉTABOLISME BASAL.** Par Marcel Labbé et H. Stévenin. Un volume de 344 pages avec 31 figures. Masson Et Cie, Editeurs, 120, Boulevard Saint-Germain, Paris. Price 40 Frs.

This is an excellent, complete treatise on basal metabolism from both a theoretical and practical (clinical) point of view. A. S. W.

**TWEEDY'S PRACTICAL OBSTETRICS.** Edited and largely rewritten by Bethel Solomons, M.D., F.R.C.P.I., M.R.I.A., Master, Rotunda Hospital; Sometime Gynaecologist, Mercer's Hospital, Dublin, etc. Sixth edition. Oxford University Press, American Branch, 35 West 32nd Street, New York City. Price \$7.50.

This edition of Tweedy's Obstetrics is edited by the new master of the Rotunda Hospital in Dublin, one of the oldest obstetrical shrines. Dr. Solomons has shown in his revision the trend of modern obstetrics on such important topics as the toxemias, hemorrhage and contracted pelvis. The book is more a manual than a text, setting forth in concise manner the present English version of many of the vital problems in obstetrics today. Special mention is made of the definite and specific directions outlined for the management and treatment of the various complications met with in everyday practice.

Many of their ideas probably would not meet with the approval of American obstetrics, yet we must give thought to them, coming as they do from this old conservative source of obstetrical knowledge. P. A. G.

**THE TREATMENT OF FRACTURES AND DISLOCATIONS IN GENERAL PRACTICE.** By C. Max Page, D.S.O., M.S. (Lond.), F.R.C.S., Surgeon to St. Thomas's Hospital, etc., and W. Rowley Bristow, M.B., B.S. (Lond.), F.R.C.S., Surgeon to the Orthopaedic Department, St. Thomas's Hospital, etc. Third edition. Oxford University Press, American Branch, 35 West 32nd Street, New York City. Price \$4.25.

The title outlines the scope of this presentation, and the discussions throughout have been carefully planned with this important end in view. As in no field of medicine did the World War do more to develop a cosmic coordination than in that of traumatic surgery, so this volume as a whole admirably exemplifies the common point of view of today. Those of us who know the remarkable flexibility and efficiency of the Hodgen splint were interested to note its increased usage during the World War, even though it was frequently curtailed in usefulness by modifications in both structure and suspension technic. This splint has been incorrectly illustrated on page 35, and the text there and elsewhere shows the usual lack of accurate comprehension. Caliper splinting is correctly commended for weight relief. The use of slings is not entirely in accord with the best American practice, a right-angled elbow flexion seems not fully appreciated, their horizontal swathe usually does not extend beyond the 5th metacarpophalangeal joint. There is no known condition that would warrant the use of their so-called "collar and cuff sling," when slings of demonstrated comfort and efficiency are available. Recognizing the probability of subsidence of immunity, their recommendation of repeated doses of antitetanic serum up to four doses is admirable; this in all

compound fracture cases. Their suggested indications for open operation treatment of fractures are conservative and admirable. Their bandage treatment of the fractured acromial end of the clavicle and the acromion of the scapula is assuredly insufficient if employed strictly as illustrated; this, together with other instances, such as the use of the four tail bandage for fractures of the jaw, may prove entirely feasible with their clientele, which possibly is either more docile or more phlegmatic than that commonly found in the States.

In general, the counsel is essentially sane and conservative and appropriate for the general practitioner, rather than aggressive, radical or scrupulously detailed, appropriate for the skilled fracture and dislocation surgeon. The authors evidence an excellent ability in condensation without loss of clarity or accuracy.

Despite the fact that the numerous X-ray studies are excellent, the authors have thoughtfully included generous outline drawings and also have liberally used indicating arrows to designate the exact condition as portrayed.

The volume physically is what one would expect from the Oxford Press. Scientifically, it merits the attention of those who see and treat the large percentage of fractures and dislocations in general practice. N. W. S.

**MINOR SURGERY.** By Frederick Christopher, M.D., F.A.C.S., Associate in Surgery at Northwestern University Medical School, Attending Surgeon, Evanston Hospital, Evanston, Ill. With a Foreword by Allen B. Kanavel, F.A.C.S., Professor of Surgery, Northwestern University Medical School. Octavo of 694 pages with 465 illustrations. Philadelphia and London: W. B. Saunders Company. 1929. Price \$8.00.

As expressed by Kanavel in the foreword of this excellent volume Christopher has "chosen wisely and emphasized well."

The chapter on Open Wounds particularly interested the reviewer. The author quotes Tinker and Sutton as having called attention to the inefficiency of most of the common antiseptics and that bacteria can be grown almost invariably from skin prepared by antiseptics. He very properly points out under antiseptics useful information for the intern as well as the general physician. The detailed handling of all kinds of infections is presented clearly and to the point.

This book should be in every physician's library as it fulfills a great need and can be profitably used by most of us. W. R. H.

**PHYSIOPATHOLOGIE ET TRAITEMENT DUE DIABETE SUCRÉ.** Par H. Chabanier, M. Lebert et C. Lobo-Onell. Préface du Professeur Legueu. Un volume de 444 pages. Masson Et Cie, Editeurs, 120, Boulevard Saint-Germain, Paris. Price, 50 Frs.

This work represents the observations of the authors over a period of years at the Neckar Hospital. The subject of diabetes is presented in an interesting manner and with a great deal of originality. The authors accept the conception that diabetes consists in a diminution of the power of utilizing glucose. There are many interesting observations on different types of glycosuria and an extensive study of the renal element in diabetes mellitus. The authors conclude, however, that although renal abnormalities may somewhat change the picture of diabetes they play no role in creating the diabetic state. The chap-



ters on acidosis are well written and very interesting. Here again the role of the kidney is discussed in some detail.

In the treatment of diabetes the authors believe that insulin is indicated in all cases of diabetes except those which by universal agreement are benign. The insulin which these observers employed is not in as high a state of purification as that commonly employed in this country. Their statement that the risks of an insulin hypoglycemia are greatly increased by using a very pure insulin will attract much attention. It cannot be answered by American observers since we have used almost exclusively preparations that are very highly purified. The authors state that they have given more than 700,000 injections of insulin and have had only 15 hypoglycemic reactions and then only in the cases where the directions concerning the hour of administration were not followed.

The text is written with the clarity which is such a distinguishing gift of French authors and is a very interesting exposé of the subject of diabetes. It is a book with a distinctive individuality, somewhat provocative in places, but very stimulating and well worth reading. It makes no pretense of being a manual or textbook on diabetes but it represents a great deal of clinical observation, experimentation and original thinking.

R. H. M.

**GYNECOLOGIC TECHNIC, Surgical and Medical.** By Thomas H. Cherry, M.D., F.A.C.S., Professor of Gynecology, New York Postgraduate Medical School and Hospital; Director of Gynecology, Pan-American Hospital, New York City. F. A. Davis, Company, Philadelphia. 1929. Price \$8.00.

The author has compiled a very useful text for handy reference. It is not well adapted for use in undergraduate teaching,—neither in scope nor in completeness of subjects considered. In it is selected one generally accepted procedure for each particular operation, but no discussion is offered concerning the merits or disadvantages of the procedure chosen. The technic, however, is creditably illustrated with diagrams and half-tones, together with the description of regional anatomy. In some instances there seems to be unnecessary repetition of details in the steps of similar operations. The text is very readable, the size of print and type of paper are well chosen. Occasionally the author, in the stress of making emphasis, lapses into the first person without a change in context. The work is not without grammatical error, which no doubt, will be corrected in subsequent editions.

The order of arranging the subject material is a departure, in that the opening chapter plunges at once into the surgical technic of hernias, while the chapter on "Gynecological Examination" is found near the end of the volume. As a reference book for postgraduate and active surgeons this is of little significance; however, it would be more readable if Section II should precede Section I. The Sections on "Surgical Technique" are uniformly well presented. The present tendency of abdominal surgeons is to follow a more aseptic technic for large bowel resection and anastomosis. Nor does the author mention the value of Witzel cecostomy to relieve the strain on the suture line after the anastomosis. The management and treatment of abortion is outstanding, representing the most conservative measures and certainly the most successful results, opinions to the contrary, notwithstanding.

The Section on "Medical Technique" is character-

ized by brevity and clarity. The chapter on gonorrheal infections is especially good. It is refreshing to receive a conservative dissertation on the indications for and the results from diathermy, radium, and X-ray.

Conspicuous by their absence are references to urethral caruncles and opinions concerning sedimentation tests.

The book contains a wealth of material gathered from extensive experience, concisely written, and is of distinct value in postgraduate teaching.

R. R. W.

**CLINICAL LABORATORY METHODS.** By Russell Landrum Haden, M.A., M.D., Professor of Experimental Medicine, University of Kansas, School of Medicine, Kansas City, Kansas. With 69 illustrations and 4 color plates. Third edition. St Louis: The C. V. Mosby Company. 1929. Price \$5.00.

Being in its third edition is in itself a warm recommendation of the meritorious character of this book. The new edition carries the technic of the Kahn test and the determination of indican in the blood. The author has wisely omitted certain procedures that are seldom used.

The book is intended to be a working manual for the clinical laboratory. The methods are very clearly set forth and the directions for making the reagents are plain. A brief explanation is given for the reaction in many of the tests, for instance, the principles underlying the test for bile salts. The chapter on the quantitative chemical examination of urine is very good. Exton's excellent method for albumin is given. The determinations for total nitrogen, chlorides, uric acid, ammonia, creatinine, etc., are well described, together with the proper reference to the original articles covering these technics. This we think is a good point. The chapters on gastric juice analysis, sputum and feces are particularly useful. The chapter on qualitative blood tests is very much like that found in other standard works. That chapter like similar chapters in all works in English, we imagine, will be rewritten after the Schilling ideas have penetrated into the various laboratories in this country. Plate III gives a fairly good representation of blood cells by Wright and Ehrlich staining methods. This will be reclassified along the ideas of Schilling. There is a very good description of the fragility test of blood. The chapter on the quantitative blood analysis is good,—clear and distinct, but serology while fairly well covered really requires more space than is accorded it.

The chapter on bacteriological methods is useful but not sufficiently amplified to induct one properly into this subject. The conclusions as to the specificity of the smear method of identification of gonococci are not those of the reviewer nor, do we think, of those especially trained in this phase of bacteriological diagnosis. A chapter on miscellaneous clinical pathological examinations and one on chemical procedures and solutions are well written.

There is no doubt of the value of anything that Professor Haden writes, for he is a careful and conscientious writer. We are inclined to believe, however, that the work if amplified a little would be a better book, viewed as a laboratory manual. It has small value as a clinical guide to the physician for it contains little of an interpretative nature.

R. B. H. G.

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### ORIGINAL ARTICLES

#### AGRANULOCYTIC ANGINA\*

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AND

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In presenting this paper we are guided by a statement of Bruggemann in a paper on "Agranulocytic Angina," viz., "Every case of agranulocytosis should be published so that by general further investigations we contribute to the end that the veil which even today still partially covers this disease picture, will soon be lifted."

With this thought in mind we make an effort to portray the present status of the subject after having reviewed the literature to date, and to add a case we have had under treatment for the past four months that we believe will probably recover.

This symptom-complex, as Minot and Buckman refer to this disease, was first described in 1922 by W. Schulz and U. Friedeman, working independently. Since then many authors have reported on the condition, each adding a thought which may serve to unveil the complexity of the disease.

There is much disagreement in the literature as to the nature of agranulocytosis. Some observers prefer to refer to it as a disease entity; other equally good observers contend that it is merely a syndrome, a symptom-complex, the basis of which we do not understand.

Thus, Elkesles states that agranulocytosis is a new disease picture characterized by ulcerous-granulomatous processes in the mouth and throat, and by a unique blood picture. This statement immediately raises the question: is the blood

picture induced by the activity of the pathologic changes in the oral cavity, or are these changes due to the lowered resistance created by the blood picture.

Again, Elkesles further states, "We assume a severe, isolated injury to the agranulocytic apparatus which is rendered extremely acute through a still unknown 'exciter' or its toxin which enters through the mouth and throat."

Bautz emphatically stresses the opposite view in the following statement: "At present, however, the disease of the leukopoietic system is considered as primary and the gangrenous pharyngeal processes as a consequence of the deficient resistance of the tissues, caused by the lack of the neutrophile leukocytes."

Whatever view one might take one must bear in mind the following facts: (1) That in some patients the initial acute attack of this disease is preceded by a feeling of fatigue and exhaustion for several weeks; (2) that the granulocytes during this stage are markedly reduced; (3) that blood transfusion clears up the gangrenous processes in the mouth and pharynx only when such procedure induces an increase in the granulocytes.

In the present state of our knowledge one cannot be too positive of the nature of agranulocytosis. At best we can merely state that, as is true of all the so-called "blood diseases," one should withhold a positive opinion until further studies have been made.

Agranulocytic angina seems to have no definite age incidence. It has been reported in a child as young as four and one half years. The oldest adult reported is a woman 63 years of age. It is agreed by all writers that more than 90 per cent of the cases occur in women. Early observers considered the disease was found in women only but we now know that such is not the case.

The accompanying table gives the age incidence in 15 cases selected from the literature. It will be seen that the average age is about the same in both sexes and that males compose a very small number of the total cases.

\* Read at the 72nd Annual Meeting of the Missouri State Medical Association, Springfield, May 13-16, 1929.

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Cases	Sex	Age
1	Female	63
3	Female	42
3	Female	44
2	Male	44
2	Female	20
1	Female	18
1	Female	49
1	Female	57
1	Male	32
Total females.....		12
Total males.....		3
Average age of females		40.4 years
Average age of males..		40 years

As has been stated, some patients complain of being easily tired and of weakness for some time before any acute illness appears. The large majority of cases, however, begin briskly with the following symptoms: (1) Fever, usually around 103-104°F.; (2) definite general weakness; (3) sore mouth and throat; (4) rapid pulse; (5) loss of appetite.

On physical examination we may find the following: (1) Ulceration of any one or a combination of the tongue, larynx, pharynx, tonsil, genitalia; (2) gangrenous edema of floor of the mouth; (3) enlargement and tenderness of the cervical lymph nodes; (4) cutaneous necrosis; (5) slight icterus (not constant); (6) no hemorrhagic diathesis.

The subjective symptoms in themselves give no clue to the diagnosis. The entire group of symptoms can well fit in with any acute infection, especially of the upper respiratory tract.

On physical examination the findings are not of great aid in making a diagnosis of agranulocytosis unless one happens to keep the condition in mind. We will see later in our discussion that such findings can very well go with Vincent's angina, diphtheria, or streptococcal pharyngitis with membrane formation. It is only in conjunction with a careful and thorough blood study that the symptoms and physical findings enumerated take on significance. Before taking up the blood picture and other points in the diagnosis we shall digress a moment to learn something of the pathology of agranulocytic angina.

Antemortem the only characteristic pathological change is the blood picture. The ulcers in the mouth and throat on gross inspection cannot be said to show any one thing that stamps them as characteristic of agranulocytic angina.

Postmortem we usually find around the ulcers in the mouth and throat an inflammatory zone which contains infiltrations of small round cells only, no polymorphs. Another interesting finding is in the bone marrow. Smears reveal no granular cells and a predominance of lymphocytes and endothelial cells. It was upon these pathological changes that a diagnosis of agranulocytosis was made on the post-mortem table in several cases although the disease had not been either suspected or strongly considered while the patient was alive.

The fact that more than ninety per cent of

the cases reviewed entered the hospital with an admission diagnosis of Vincent's angina, diphtheria, or septicemia, is proof that the diagnosis is no easy matter. Furthermore, when the blood picture is thoroughly studied it is at times difficult to form a definite conclusion.

The establishment of the diagnosis consists in thoroughly working up the following: (1) A complete history and thorough physical examination; (2) the following blood studies should be made: A complete blood count, the oxydase reaction, platelet count; (3) a bacteriological examination of the floor of the lesions in the mouth and throat and a blood culture should be made routinely.

The blood findings in agranulocytosis are very characteristic. The number of red cells may be normal or moderately reduced. The same may be true of the percentage of hemoglobin. The platelet count remains normal. The changes in these elements of the blood, although not characteristic of agranulocytic angina, are very important in differentiating the latter from many other conditions to be enumerated below.

The change in the blood picture which is pathognomonic is the lack of granular cells and a very low total white count, usually below 1500. One does not always find an absolute lack of granulocytes. In those cases, however, the granular cells are so few and such a long search is required to find them that for practical purposes they may be considered absent. Table 2 gives an idea of the findings usually encountered:

Table 2. Blood findings in a few of the cases reviewed.

Hb	RBC	WBC	Pol.	L & S Lym- phocytes	L Monos	E
91	4,850,000	175	0	90	10	0
78	normal	700	3	96	1	0
30	1,250,000	1300	3	97	0	0
	3,000,000	2800	5	78	16	1
	normal	1200	20	80	0	0
	3,500,000	1000	2	74	24	0

The urine is of no aid in making the diagnosis. This can be seen from Table 3 which records the average urinary findings in these cases.

Table 3

Albumin	Sugar	Casts	RBC	WBC
+	0	+	+	+
-	0	0	0	occ.
0	0	0	0	0
0	0	0	0	+ occ.

A bacteriological examination of the lesions in the mouth and throat usually reveals a mixed and uncharacteristic flora. The blood culture is usually negative.

The greatest difficulty in making a diagnosis of agranulocytic angina is encountered when one attempts to differentiate it from certain other conditions which present findings closely allied to and easily mistaken for agranulocytosis. Table 4 gives in detail the conditions which must be considered in the differential diagnosis and the points of difference:

Table 4. Differential Diagnosis

Agranulocytic Angina	Aplastic Anemia	Aleukemic Leukemia	Monocytic Angina	Septicemia	Acute Leukemia
Very marked reduction in granulocytes or entire absence of these cells			Reduction in polymorphonuclears never as marked, usually 2000-4000. The mononucleosis consists of 80% of large mononuclear cells	Leukocytosis if leukopenia is present the polys are usually relatively increased	Hyperleukocytosis
No change in platelet count	Absence of platelets	Reduction in blood platelets		Reduction in platelet count	
No hemorrhagic diathesis	Hemorrhagic diathesis	Hemorrhagic diathesis		Petechial hemorrhages	Hemorrhagic diathesis present
No abnormal white cells					Abnormal white cells usually present
Red count either normal or slightly reduced	Very marked anemia	Severe anemia		Moderate anemia	Anemia
No general glandular enlargement	No glandular enlargement	General glandular enlargement	General enlargement of glands with enlargement of spleen and liver		General gland enlargement
Blood culture usually negative				Blood culture usually positive; enlarged spleen	

It will be seen from Table 4 that, even when typical points of difference are considered, there may still be cause for variation of opinion, as when the atypical cases of these conditions are met one is still more impressed with the difficulties one may encounter in attempting to make a diagnosis of agranulocytic angina.

TREATMENT

Various therapeutic procedures have been employed in the treatment of agranulocytosis. Not one has proved specific and most of the measures tried have been of no value. Thus, Borchers tried injections of arsenic and blood transfusions but to no avail. Others have tried intravenous mercurochrome and diphtheria antitoxin with similar results.

In our own case we used nothing but blood transfusions. Following each transfusion the patient exhibited a very severe febrile reaction, the temperature rising to 106° F. by rectum. Although one is not justified in making positive statements, we feel that the extreme febrile reaction in our case may have had something to do with its partial recovery.

A fatal prognosis is usually given. Kastlin, in 1927, reviewed 43 cases out of which only three recovered. Since then, according to Klein, seven more cases have been reported with no recoveries. It will thus be seen that the mortality rate in agranulocytic angina is very high.

The case we report is one we have had under treatment since January, 1929. As will be seen

from the reports of the blood picture from time to time, it might be said that at least a partial recovery has been attained. Although at present the patient is showing a relapse we are in hopes that with further treatment we may ultimately report another recovery.

REPORT OF CASE

Mrs. M. J., aged 31 years, white, housewife, entered hospital January 27, 1929; discharged February 16, 1929. Temperature on admission 104° F. C. C., painful mouth and throat, general weakness. F. H., father died of multiple sclerosis. One sister died of influenza; the cause of another sister's death unknown. No history of tuberculosis, carcinoma, diabetes or heart disease. P. H., has always been of delicate constitution. Since 8 years of age her physical condition has been impaired due to intermittent attacks of sinusitis. In 1918 she spent two months in a sanatorium with a diagnosis of pulmonary tuberculosis. For the past year she has been having dyspnea and palpitation on exertion. Some swelling of the extremities has been noticed. No night sweats, no cough, no loss of weight. Appetite good but unable to gain weight. P. I., five weeks ago patient had influenza; was confined to bed for two weeks; following recovery she developed a sinusitis of the antra of Highmore which became purulent; she then consulted an otorhinolaryngologist. Accompanying the sinusitis was marked general weakness. After two weeks of treatment for sinusitis she was forced to bed on account of the weakness. About that time her mouth and pharynx became very sore and ulcers developed in the mouth, about the oral cavity and on the skin of the upper chest and forearms. At this stage of her illness we were consulted on account of her dyspnea. We advised hospitalization so that a more thorough and comprehensive study might be made.

P. E. A very pale, moderately anemic, very ir-



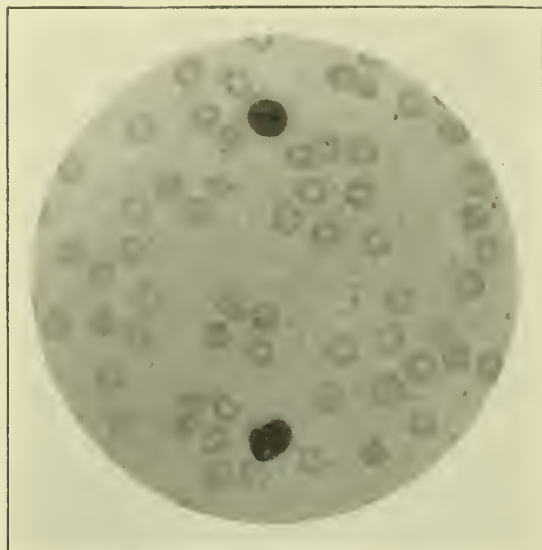


Fig. 1. Blood picture on admission. No polymorphonuclears. One small lymphocyte and one nucleated red cell are seen.



Fig. 2. Blood picture after two transfusions. Two newly formed granular cells are seen.

ritable female about 30 years of age. Head, nothing unusual. Eyes presented a slight icteric tinge to sclera; pupils equal, regular and react to light and accommodation. Nose and ears present nothing unusual. Mouth, a partial upper plate, lower teeth badly in need of scaling and polishing. Tonsillectomy in 1913. Markedly injected mouth and oral pharynx. Ulcerative lesions, about the size of a pea, seen in the mouth and on the buccal mucosa. Neck, no cervical adenopathy. Thyroid not palpable. Chest, thin, pigeon-breast thoracic cage. Marked generalized muscular atrophy of chest muscles. Percussion and auscultation reveal nothing unusual. Expansion fair and equal. Heart, P. M. I. in 6th interspace and within midclavicular line. Impulse is diffuse and can be felt at anterior axillary line. First sound at apex roughened. No other abnormal sounds detected. Abdomen, no distention, no rigidity except at right upper and middle quadrants. Liver and spleen not palpable. Percussion note tympanitic. In upper right and middle quadrants can be felt a fairly firm mass, about 4 inches below the right costal margin. It seems to be continued from right costal margin, probably an extension of gallbladder; tender over this mass. Extremities, no tremor, no edema. Skin, small ulcerative lesions can be seen over the forearms and chest. Reflexes and sensorium, normal. Urine, on admission, yellow, acid, Sp. Gr. 1.022, albumin plus, sugar negative, few red and pus cells.

Three transfusions during a period of six days showed little change in blood picture. A blood count made on February 6, 1929, showed a normal differential and white count. The next three counts made over a period of four weeks showed a lowering of the white blood cells with the number of red blood cells and hemoglobin remaining constant. Three counts made during the last two weeks in March, 1929, again remained constant, the white cells averaging 6600. During April the white cells averaged 4700, but the first part of May they lowered to 2200.

**Other Examinations.**—X-ray of sinuses: The accessory sinuses of the nose show a dense opacity of the left antrum as from complete blocking from return-

ed secretion or pus. The left postethmoids also involved. The other cells appear relatively clear.

**Graham Test.**—A very feeble concentration of dye in a long narrow gallbladder which does not change after fats. We do not get the impression of a definite gallbladder disease. A metabolic disturbance with impaired liver function might account for the findings.

A recheck of the gallbladder February 4, 1929.

**Treatment.**—Consisted of (1) three transfusions; (2) bed rest plus local treatment of ulcers in mouth with silver nitrate; (3) Lyon's gallbladder drainage.

Following each transfusion the patient reacted with chills and fever rising to as high as 106° F. by rectum. These febrile reactions are probably of foreign protein type and we feel that in some way, probably akin to the action of malaria in paresis, these have stimulated the agranulocytic mechanism to activity.

#### SUMMARY

We know of no better way of summarizing the subject than to stress the facts in our case which bear out the data presented in this paper.

1. Agranulocytic angina is a definite disease entity presenting a typical blood picture.

2. The history, physical findings, and a careful and thorough study of the blood picture make it possible to differentiate it from such conditions as acute leukemia, aplastic anemia, monocytic angina, septicemia, and aleukemic leukemia.

3. The diagnosis is easily missed unless one carries out all the diagnostic procedures suggested above. Thus, in our case the patient had been treated for the ulcers of the mouth by a rhinologist who apparently did not consider a systemic basis for the local lesions.

4. The etiology and pathogenesis of this condition is not clear, as is the case with all diseases of the blood.

5. There is a definite pathology to be found in agranulocytosis.

6. The prognosis is usually fatal, only four recoveries being reported out of a total of 51 cases.

7. The treatment is not agreed upon. Our case recovered after three transfusions, which brought on severe febrile reactions. Accessory treatment consists in plenty of rest, removal of foci of infection, and good nourishing food. Arsenic in any form should be avoided.

1019 Argyle Building.

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#### DISCUSSION

DR. F. D. GORHAM, St. Louis: I wish to show a slide of a case of agranulocytosis that is now under treatment. This is a woman 52 years of age confined to her bed for nearly six years because of arthritis. In February, 1928, she had some teeth extracted, after which she developed a condition of the mouth believed to be Vincent's angina. Leukocyte count at that time 2500. Under treatment the local condition improved. No unusual symptoms except the discomfort associated with the arthritis and a severe psoriasis which was treated by X-ray.

Chart 1. Blood Findings

DATE	WBC	SEG.	STAB.	EOSIN	RASO	LYMPHO	MONO
5-8-28	8,000	61	—	0	0	35	4
4-6-29	2,300	35	8	0	0	48	10
4-8-29	1,200	0	0	0	0	91	9
4-9-29	500						
4-10-29	280	4	0	0	0	86	10
4-11-29	500						
4-12-29	1,550	0	0	0	0	80	20
4-13-29	1,000	2	0	0	0	78	20
4-15-29	3,400	45	14	0	1	30	10
4-16-29	4,800	53	12	0	0	26	9
4-17-29	5,200	59	9	0	0	21	11
4-19-29	5,600	61	16	0	0	17	6
4-20-29	7,200	40	28	0	0	20	12
4-24-29	6,400	51	12	0	1	28	8
4-26-29	7,400	37	30	0	0	27	6
4-29-29	6,000	39	26	0	0	29	6
5-1-29	7,600	43 J	22	0	0	15	17
5-7-29	7,000	60	17	0	0	20	3
5-11-29	8,800	57	9	0	0	29	5

In March, 1929, there developed intestinal symptoms, nausea, vomiting, chills and fever, temperature 102 to 104. Later there appeared abscesses,—

rectal, vaginal and inguinal. While she complained of sore throat there were no objective findings. The blood findings are shown on the chart. In consultation with Dr. George Ives, pathologist, and two internists, one being a relative of the family, it was decided to employ no treatment other than symptomatic. In spite of the fact that for several days she was unable to take food or sufficient fluids, she began to improve slowly and is now in practically the same condition as before the last exacerbation. It is our belief that this is in all probability her second exacerbation, the first occurring in February, 1928.

DR. JONES, in closing: I only want to add that there is argument as to whether this disease starts in the mouth or whether it is of intestinal origin. Bruggemann and Schultz bring out this point clearly in a review of their cases, and they feel that the infection that is present invades the mouth on account of lowered resistance due to a lowering of the white blood cells.

## EVOLUTION OF OUR KNOWLEDGE OF CHILDHOOD TUBERCULOSIS

WITH REFERENCE TO ITS PREVENTION AND  
TREATMENT

HOWARD H. BELL, M.D.

ST. LOUIS

#### MODE OF INFECTION

Intra-uterine transmission accounts for a very small number of childhood tuberculosis and in most of such instances the mother has extensive miliary tuberculosis. There is no evidence that intra-uterine infection ever comes from the father.<sup>1</sup> After birth the infection comes from contact with a positive sputum or an open case of pulmonary tuberculosis, very often in the mother, or from infected cow's milk and butter.

#### BOVINE TYPE—BACTERIOLOGY

In a study of 1400 cases in children the bovine type of bacillus was found in 50 per cent of primary abdominal lymph node infections, in 41 per cent of cervical lymph node infections, and in 23 per cent of generalized tuberculosis. In none of these cases was the bovine type found in pulmonary infections. From these figures it would seem that either the lung is immune or lung infection must come from inhalation.<sup>2</sup>

The studies of Park and Krumwiede showed that from birth to 6 years of age 73.5 per cent of infections were from the human type of bacillus and 26.5 per cent from the bovine type; from 6 to 16 years, 98.7 per cent were from the human bacillus and 1.3 per cent from the bovine bacillus.<sup>3</sup> In England, Cobbett estimates that 6 per cent of all deaths from tuberculosis are from the bovine type of bacillus.



## PORTAL OF ENTRY

There are three main views in reference to the portal of entry: (a) After being swallowed the organism passes along the lymphatics or blood stream to the lungs. This view received its greatest endorsement in France. (b) The aerogenous portal of entry is widely accepted. Pulmonary tuberculosis results from infections via the respiratory tract. Primary intestinal tuberculosis does occasionally occur in children but rarely in adults. Calmette infected young goats very readily by feeding experiments but adult goats with much difficulty. Intestinal tuberculosis is followed by mesenteric lymph node tuberculosis which may persist as evidence of a preceding infection. Primary abdominal tuberculosis presumably caused by intestinal infection is in a large proportion of instances referable to the bovine type of bacillus. Pulmonary tuberculosis in children and adults is almost invariably associated with the human type of bacillus.<sup>4</sup> (c) The tonsils and adenoids and the lymphatic ring about the pharynx may be of some importance as a portal of entry as shown by the occasional finding of the bacillus in those regions. When the cervical nodes become involved it simply implies that the organism has passed the first line of defense.<sup>5</sup> Although tuberculous cervical adenitis may follow primary tonsillar infection it is more often secondary to pulmonary involvement.

## INFECTION

The infection may be (a) primary, or (b) reinfection. Reinfection may be (1) exogenous or (2) endogenous. Endogenous reinfection may be (a) bronchogenic, (b) hematogenic, or (c) lymphogenic.<sup>6</sup>

A. *Primary Infection*.—Nonspecific influences opposing primary infection have been aptly discussed in the literature.<sup>5</sup> That tuberculous infection is almost universal in adults was demonstrated as early as 1900<sup>7</sup> but it was not until 1912<sup>8</sup> that the nature of the primary infection was carefully studied. Its location was found to be in the parenchyma of the lung, usually near the pleura, and that the adjacent lymph nodes become secondarily infected. These facts have been confirmed by more recent studies.<sup>4, 9</sup>

Table 1. Location of Primary Lesion<sup>10</sup>

Region	No. Cases By Ghon	No. Cases By Opie	No. Cases by Wollstein and Spencer
Rt. upper lobe	51	7	17
Lt. upper lobe	50	5	16
Lt. lower lobe	40	5	16
Rt. lower lobe	39	5	13
Rt. middle lobe	14	5	11

Younger children tend to be overwhelmed by the tubercle bacillus and no immunity de-

velops. In children over two years of age there is an increasing tendency toward immunity and consequent limitation of the lesion for a time.<sup>11</sup>

B. *Reinfection*.—This subject has been the cause of much controversy. "The consumptive," said Hippocrates, "is born of a consumptive."<sup>12</sup> Von Behring contended that tuberculosis in the adult is the continuation of a song begun in the cradle of the infant.<sup>13</sup> More recent observations, however, would indicate that adult pulmonary tuberculosis in a large percentage of instances results from infection after puberty.<sup>2, 14</sup>

In the first year of life tuberculous infection is usually but not always progressive and fatal and exhibits the characteristics of experimental tuberculosis in susceptible animals. With increasing age the tendency to heal increases. At the age of 18 almost every individual possesses caseous encapsulated and more or less completely calcified focal lesions of the lung and tracheobronchial lymph nodes<sup>15</sup> despite the not infrequent lack of history of illness to account for these findings. The primary pulmonary infection does not select the apices of the lungs and is accompanied by massive tuberculosis of the regional lymph nodes.

Adult tuberculosis is commonly (a) apical with no caseation in the regional lymph nodes; or (b) focal (not commonly in the apices) accompanied by caseation (or calcification) of adjacent lymph nodes and is identical with the childhood type. Fatal tuberculosis after 10 years of age is with few exceptions apical in origin.<sup>16</sup>

As previously stated, the lungs of adults with few exceptions show evidence of tuberculosis acquired in most instances during childhood. While phthisis of adults is for the most part not childhood infection, still it is not improbable that a small number of instances of phthisis acquired in childhood may pursue an unusually chronic course and reach fatal termination in adult life after the lapse of years.<sup>4</sup>

The frequency of exogenous superinfection in the adult increases in proportion to the length of time individuals are followed after exposure, as shown by studies on conjugal tuberculosis.<sup>15, 17</sup> The longer one follows those widowed by tuberculosis of the mate the higher the incidence of active disease is found. Factors influencing superinfection are (a) frequency and (b) size of the dose of infecting organisms, as occurs from living in intimate contact with the consumptive having a positive sputum.<sup>18, 19</sup>

We know that frequently repeated specific reinfection does depress both allergy and im-

munity in the experimental animal and leaves it in a more susceptible state by the withdrawal of resisting influences.<sup>20</sup> Allergy, and in all probability immunity also, wanes in intensity as the lesions heal; although it may reach a low level it is rarely entirely lost and then only with the complete eradication of all lesions in the body.<sup>21, 22, 23, 24</sup>

More or less immunity to tuberculosis lasts as long as the individual has tuberculosis; while the statement is made that adults are more resistant to tuberculosis only because they are more tuberculous<sup>25</sup> it must be remembered, nevertheless, that with delay of the primary infection there is a tendency to heal by fibrosis.<sup>11</sup> The more completely a child cures its infection the more susceptible it becomes to superinfection. A study of the literature would seem to indicate that the majority of cases of pulmonary tuberculosis in the adult results from exogenous superinfection.

#### CONTAGIOUSNESS OF TUBERCULOSIS

In studying a large group of admissions to the sanatorium an average of at least three other consumptives was found clustered about the one who was sent to the sanatorium.<sup>13</sup> It is clearly shown below that tuberculous infection is definitely higher among those children with exposure.<sup>26, 15</sup> Furthermore, 95.7 per cent of infants under two years of age showing tuberculous infection gave histories of exposure in the family.<sup>27</sup>

Table 2. *Children Reacting to Tuberculin in New York*<sup>28</sup>  
Taken collectively. Without reference to contact with tuberculous patients

Age	No. Tested	No. Positive	Percentage Positive
0- 6 months	51	4	7.8
6-12 months	38	6	15.8
1- 2 years	29	5	17.2
2- 3 years	45	14	31.1
3- 5 years	28	12	42.8

It has been shown that the total of deaths from tuberculosis is greater during the first

Table 3. *Percentages Showing Positive Tuberculin Reaction*

Age	Per Cent Contact With Open Cases	Per Cent Not in Contact
0- 5 years	80	23.3
5-10 years	80.4	35.5
10-15 years	91.1	46.2
15-20 years	95.5	62
20- years	100	100

#### FREQUENCY OF TUBERCULOSIS IN CHILDHOOD

There are four chief factors permitting tuberculous disease as stated by Bernard and Debré<sup>30</sup> viz., (1) duration of contact of child with source of infection; (2) the degree or intimacy of contact with source of infection; (3) the age of child at time of infection; (4) the length of survival after separation from the source of infection.

Despite the fact that tuberculosis is a common disease in children its diagnosis is not frequently made. During 1921 in the outpatient department of the Children's Hospital of Boston, of 10,000 diagnoses, less than 100 were tuberculosis, unless 104 cervical adenitis were called tuberculosis. In the ward, the diagnosis of tuberculosis was made 36 times out of 822 diagnoses.<sup>31</sup>

Among 1,320 autopsies at the Babies' Hospital in New York, 178 showed tuberculous lesions. Of these, 75 per cent were under 2 years of age and 25 per cent in older children.<sup>32</sup>

Fibrocalcified nodules in the lung of living children are, nine out of ten times, tuberculous.<sup>29</sup>

Perhaps a better conception of its relative frequency may be gained from the statement that during the past year about 3 per cent of the babies admitted to the infant ward of the St. Louis Children's Hospital were found to be suffering from active tuberculosis, and this despite the fact that the majority of our cases in infancy are so-called "feeding cases," that is, children with some intestinal disorder who are not sick in the ordinary sense.\* In short,

Table 4. *Total Number Deaths from Tuberculosis, 89,263*  
U. S. Registration Area, 1925. Tuberculosis All Forms

Age	Under 1 yr.	1 yr.	2	3	4	Under 5	5-9	10-14	15-19	20-24
Male W	655	442	254	181	150	1682	413	438	1524	3055
Male C	140	154	81	66	60	501	172	277	939	1505
Female W	555	404	211	155	106	1431	403	662	2957	4724
Female C	110	137	75	69	50	441	189	464	1467	2075

year than in any other one year of life. Since 64 to 81 per cent of children with a definite contact history get tuberculosis<sup>29</sup> it may be concluded thoroughly unsafe to house children with open cases. It has been shown in a large series of children of varying age that those in contact with open cases give a positive tuberculin twice as often as non-contact cases. The following table is of interest:<sup>15</sup>

then, we may say, that tuberculosis is not only of relatively frequent occurrence in infancy, but assumes an augmented importance at precisely this age because of a mortality which is

\* This figure includes only those cases in which the diagnosis seemed quite certain. Had we included all infants with positive skin tests, in whom activity of the lesion seemed highly probable because of the age of the patient the percentage would have been perceptibly higher.



never approached at any subsequent age period.<sup>33</sup>

The types of tuberculous disease in children<sup>34</sup> are, (1) the infantile type which usually is widespread and general throughout both lungs; (2) the juvenile type which usually involves the hilum or roots and may be a frank type with extension into the lung parenchyma, or a masked type; (3) miliary tuberculosis (rarely diagnosed except by X-ray and at autopsy); (4) adult type involving the parenchyma of the lung. (It is associated with characteristically much fibrosis and is rarely observed before 10 years of age.)

The term "epituberculosis" of Eliasberg and Neuland has been used to denote extensive involvement,—one lobe or more of a lung,—associated with hilum involvement, rather low temperature, negative sputum. Resolution takes place after several weeks leaving only lymph node involvement.<sup>35</sup> Epituberculosis is similar to the allergic reactions usually described in connection with tuberculosis. Occasionally the spread forms a triangle with the base at the hilum and its apex at the axilla, thought by some to be interlobar pleuritis and by others parenchymal infiltration, which latter is apparently more correct. After a time, this usually disappears but is subject to recurrence.<sup>36</sup>

perior to the von Pirquet in detecting tuberculosis.<sup>40, 41, 42</sup> Hamburger contends that in order to exclude tuberculosis the child must be negative to from 1 to 10 milligrams of O. T. and recommends (1) a cutaneous or percutaneous test with concentrated tuberculin. If negative after 24 or 48 hours, continue with stronger doses giving (2) 0.01 milligram subcutaneously; (3) if negative after 48 hours give 0.1 milligram subcutaneously; (4) if negative after 48 hours give 1.0 milligram. If negative to 1.0 milligram the child may be regarded as nontuberculous although if a doubt remains 10 milligrams may be used.

#### THE DIAGNOSIS OF TUBERCULOSIS IN CHILDHOOD

The diagnosis of tuberculosis has aptly been divided into three stages.<sup>35, 43</sup>

The first stage is the stage of infection, with absence of physical signs, and in the course of time a positive tuberculin reaction develops with complement fixing bodies in the blood stream.<sup>44</sup> If symptoms are present they are usually mild and attract little attention.

The second stage is the stage of enlargement of hilum nodes which may cause a group of symptoms resulting from pressure in the mediastinum. D'Espine sign may be present.

The third stage is the stage of involvement of lung parenchyma. The diagnosis has been

SYMPTOMS OF TUBERCULOSIS—THE SYNDROME<sup>37,38</sup>

Group 1 From Toxemia	Group 2 Reflex Action	Group 3 Tuberculosis Involvement Per Se
Malaise	Hoarseness	Frequent and protracted colds
Lack of endurance	Tickling in larynx	Spitting blood (rare in children)
Loss of strength	Cough	Pleurisy (tuberculosis of pleura)
Nervous instability	Circulatory disturbance	Sputum
Lack of appetite	Digestive disturbance	
Digestive disturbance	Loss of weight	
Metabolic disturbance resulting in loss of weight	Chest and shoulder pains	
	Flushing of face	
Increase pulse rate	Spasm of muscles of shoulder girdle	
Night sweats		
Elevation of temperature	Diminished motion of affected side	
Blood changes		

For the most part, interest in this subject is centered in the diagnosis of masked infection before the lung parenchyma becomes involved. The early symptoms are usually those of toxemia.<sup>39</sup> The tuberculin test may not appear positive for many weeks, in some instances up to three months after infection.<sup>29</sup> It is not necessary to use both the human and bovine tuberculin for the type of infection cannot be determined by this means.<sup>35</sup> Human type of tuberculin should be routinely used. The Mantoux or intracutaneous test is far su-

far too long delayed by the time the third stage is reached.

If we wait for a positive diagnosis it is often too late to save life. A positive tuberculin associated with subjective symptoms should cause us to treat a child as "potentially tuberculous." Of course, no one would subject a well nourished healthy child to the "cure" just because it has a positive tuberculin. All unresolved pneumonia in the presence of a positive tuberculin should be regarded as tuberculous until the child is well above "par."<sup>45</sup>

Tuberculin tests show from 50 to 70 per cent of children are infected before 15 years old, and almost universal in the city.<sup>39</sup>

Strong suspicion should be aroused by:

- (1) History of contact.
- (2) History of recent measles or frequent colds.
- (3) Positive tuberculin. (Usually negative after recent measles irrespective of tuberculous infection.)
- (4) Some evidence of toxemia. (Elevation of temperature, cough.)
- (5) A loss of weight or failure to gain weight.

A positive tuberculin, after ruling out those conditions which give a negative tuberculin despite the existence of a tuberculous infection,<sup>46</sup> should help us to recognize the "potentially tuberculous child" and enable us to deal with the circumstances properly.

Symptoms, both constitutional and local, together with a history of exposure and a positive tuberculin reaction, are to be given greater weight in making the diagnosis of active tuberculosis than physical signs and X-ray finding.

#### PROGNOSIS

In a series of 114 children under 2 years of age the mortality was 70 per cent.<sup>47</sup> In another series, the mortality from tuberculous infections during the first year of life was 70 per cent and during the second year was 24 per cent, making a total of 44 per cent for the first two years.<sup>48</sup> Other statistics show that 78.7 per cent infected under one year died, and 57.4 per cent from one to two years died, making a total of 68 per cent for the first two years of life.<sup>49</sup>

#### PROPHYLAXIS

Tuberculosis in infancy constitutes abdominal, cervical and tracheobronchial adenitis, pulmonary tuberculosis, meningitis, osteomyelitis, arthritis and dermatitis. Acute lymphatic tuberculosis predominates from 5 to 12 years and after 12 apical lesions predominate.<sup>50</sup>

Such terms as masked, dormant, concealed, occult, and quiescent tuberculosis only mean that the distinction between latent tuberculosis and clinical tuberculosis has no other basis than the limitation of diagnostic methods and the tendency of tuberculosis to proceed to recovery.<sup>51</sup>

Experiences in trying to save children who have been infected under one year of age by placing them in a sanatorium have proved so unsatisfactory that in one instance at least this was abandoned and only tuberculin negative, undernourished children were admitted.<sup>28</sup>

In dealing with the prevention of tuber-

culous disease we must take full cognizance of undernourishment in children, found in about 15 per cent of total school children, which reduces the problem to a possible working basis. Eight per cent of those children who are 10 per cent or more underweight show evidence of tuberculosis and lose one year of normal growth; 16 per cent of these have to repeat the scholastic year.<sup>52, 53</sup> Tracheobronchial tuberculosis is more common in children even 5 per cent underweight than in children of normal weight.<sup>54</sup>

The period of latency often leads to a false sense of security after contacting a positive case. In 20 of 100 cases of phthisis there was a definite history of infections ceasing at a given date. The period of latency was less than 5 years in only 6 instances, from 5 to 10 years in 4 instances and in half of these the latent period was greater than 10 years.<sup>4</sup>

The procedure should be to interrupt contact of children with open cases and to attack undernourishment. It is of interest that Hippocrates described the so-called scrofulous type of child with the habitus phthisicus with associated undernourishment.<sup>55</sup>

In searching for tuberculosis among a large number of children it is advantageous to group them as follows:<sup>56</sup> (1) Children symptom free and without abnormal physical and X-ray findings, with a negative tuberculin. (2) Children symptom free and without abnormal physical and X-ray findings, but with a positive tuberculin (infected but without evidence of disease). (3) Slight symptoms with very little or no deviation from the normal in physical findings and X-ray, and with a positive or negative tuberculin (suspects). (4) Definite symptoms, unexplained by findings or X-ray, but with a positive tuberculin (masked juvenile tuberculosis). (5) Definite symptoms with a definite enlargement of lymph nodes and a positive tuberculin (frank juvenile tuberculosis). (6) Definite symptoms, definite physical findings and X-ray findings in part involved, bones, joints, etc., diagnosed as tuberculosis of the part involved.

The *Bacillus Calmette-Guérin*, which is the so-called BCG, was isolated from a heifer in 1908 by Calmette and his associate. This organism was subsequently determined to be the bovine type of tubercle bacillus. Continuous cultivation over a period of years on glycerinated ox bile potato medium has reduced its virulence for guinea pigs, rabbits and cattle.

Calmette first recommended that new-born infants be fed BCG and it was so administered in 1921 at the Maternity Hospital in Paris. Since that time nearly 100,000 infants have



been given this prophylactic vaccination. Calmette is convinced of the innocuousness of the vaccine and of its ability to immunize against tuberculosis.

Based on some experimental work in this country we find that "in regard to the use of *Bacillus Calmette-Guérin* (BCG) vaccine, it would seem unjustified to draw conclusions as to the absolute safety of its use at the present time."<sup>57</sup>

The definitely diagnosed tuberculous child must be treated in the home, day camp, hospital, clinic, open-air school, or sanatorium.

#### TREATMENT

The sanatorium treatment has certain advantages:<sup>58</sup> (1) Accurate classification for treatment; (2) facilities for treatment indicated; (3) therapeutic discipline of children; (4) dietary regulations.

The treatment consists of fresh air, good food, proper rest, and light therapy, which cannot be applied indiscriminately; with the addition of cod liver oil.

Signs for absolute bed rest are, fever, hemoptysis, pain, persistent cough, constant failure to gain weight, swelling or fluctuation around diseased part. Rest may at times be artificial or localized, as with splints, braces and plasters.

Patients should have a printed program of instructions which occupies the entire day. Every program should provide school work for children unless they are too ill.

#### ROUTINE USED AT THE ROBERT KOCH HOSPITAL

7:00. Breakfast. Cod liver oil in orange juice. Brush teeth after breakfast.

7:30. Temperatures (rectal). Light treatments (sunshine or lamp treatments). Children are allowed in sunshine in trunks when weather permits. Bed patients and those too young for school are bathed in the morning.

9:00. School children to school until 11:00. Those who have not made satisfactory gain are given cream and milk at 9:00 a. m. and 2:30 p. m.

11:00. Dinner.

12:00. All children are washed and put to bed for rest period until 2:30.

2:30. Temperatures. Children are allowed on playground.

4:15. Supper (cod liver oil). After supper small ones are washed and put to bed.

6:00. Larger ones are bathed and put to bed.

8:00. Lights out for the night.

Cream in milk at each meal. Weighed weekly.

Tuberculous children should be retained in a sanatorium for a minimal period of one year, for we must remember that tuberculosis tends to flare up at puberty and reaps a high death toll for many years thereafter.<sup>59</sup>

Undernourished children not requiring a period of sanatorium care may attend open-air

schools which provide for suitable food and required rest periods.

Undernourished children under twelve years of age should go to bed at 7:00 p. m. and older children at 8:00 p. m.

While overweight children occasionally have tuberculosis, still, generally speaking, a child should be discharged only when free from symptoms and when up to normal weight.

Lowell, Massachusetts, is conducting a summer outdoor camp for undernourished children, with an excellently outlined program at a minimal cost, which is giving good results in combating the development of tuberculous disease in children.<sup>60</sup>

#### DIET

The diet for undernourished children should include milk with some additional cream if tolerated, plenty of fresh vegetables, and in the winter tomato and orange juices in considerable amount when green vegetables are relatively unavailable, with one or two teaspoonfuls of cod liver oil morning and evening.

#### CONCLUSION

It becomes obvious from the preceding that it is imperative to remove children from homes with open cases of pulmonary tuberculosis. Undernourishment in children should be rigorously attacked as an energetic means of combating the development of tuberculous disease. Special rest periods for the undernourished are equally as essential as a high caloric diet rich in vitamins. Undernourished children should have a daily program or regimen which should be in writing and strictly enforced.

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## VARICOSE ULCER, ITS SYMPTOM- ATOLOGY, ETIOLOGY, PATH- OLOGY AND TREATMENT

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Varicose ulcer, otherwise known as ulcer cruris, is one of the end-results of diseased veins of the lower extremity. A much larger proportion of the people are afflicted with varicose veins of the legs than is commonly supposed. Some writers have placed it as high as 20 per cent of the population. Fully 10 per cent of those affected have ulcerating complications. McPheeters<sup>1</sup> found 65 ulcer complications in 348 cases treated. It is noteworthy, however, that mild cases of varicose veins seldom consult the surgeon for treatment, and we must assume that ulcer is relatively seldom found in the early or mild cases of varicose veins. When ulcer does occur it may be only an aggravating complication but, on the other hand, it becomes one of the most painful and disabling conditions that affect an extremity. Unless painful symptoms arise the individual may not give much thought to the enlarged and tortuous veins of the leg and, until recently so little in effecting a cure of the malady has been accomplished, they found little to encourage them in seeking advice and treatment. Until the year 1919, when Sicard and Paraf,<sup>2</sup> of Paris, made use of sodium carbonate, injected intravenously as a thrombosing agent, the only treatment for ulcer that promised any measurable degree of success was that of saphe-nectomy, a more or less hazardous and bed con-

fining operation that has been seldom advised because of the risks and uncertainties which the operation entails.

### SYMPTOMATOLOGY

The symptomatology varies; large ulcerations may produce but little pain while smaller ulcers sometimes are accompanied by the most excruciating pain. The location of the ulcer often has much to do with the magnitude of the pain. I have observed that an ulcer near the line of the maleolus occasions a much greater degree of pain than when it is located higher up. There is a sense of heaviness and fullness in the extremity which, with the added stinging and burning pain within the area of the ulcer, creates a condition that at times becomes almost unbearable. It is often intensified in the standing posture or by any constriction, such as garters when placed about the leg or by leggings, such as worn by soldiers, chauffeurs and others.

### ETIOLOGY

Since ulcer is a complication of varicose veins the etiology of the latter must be considered. Nicholson<sup>3</sup> found that 55 per cent of the cases of varicose veins gave a history of heredity. The other 45 per cent of the cases could either give no history or gave a negative history. He places the hereditary factor at approximately 75 per cent. Varicosities wherever found are traceable to obstruction to the blood current somewhere along the line of the vessels involved. The principal sites of these obstructions are about the knee, caused often by elastic garters or rolling down of the stockings. The next frequent site of obstruction is found at the saphenous opening in the fascia lata, where the long saphenous dips down over the lower border of the opening to join the femoral vein. This border is well defined with its concavity upward and lies in contact with and immediately beneath the saphenous vein, and blends with the pubic portion of the fascia lata. The falciform or superior cornua forms the superior margin of the opening. The tension upon this margin is greatly influenced by the position of the limb. Extension, abduction and external rotation of the thigh make this margin very tense, while flexion, adduction and internal rotation render it lax. This anatomical arrangement accounts for many cases of varices in people whose occupation requires them to stand much of their time in one position, as for instance certain factory workers, cooks, laundresses, etc. The attitude of such workers is always that of extension, abduction and external rotation, never that of flexion, adduc-



tion and internal rotation. In many such cases the internal saphenous vein is involved clear up to the saphenous opening. The valves of the veins in nearly all cases of varices are incompetent and in the opinion of Hasbroek, Delbert and Maegnot, and others, it is this deficiency that is responsible for the resultant pathology. Von Meisen has noted the curious fact that a very large percentage of flatfoot, varicocele and enteroptosis are concomitant with that of leg varices, and expresses the opinion that the abnormal circulatory condition lies in a weakened connective tissue of the vein and its surroundings. McPheeters,<sup>4</sup> of Minneapolis, whose classical work and investigations are recognized as being among the most valued in the recent literature, believes with Fischer, Nobl, Hesse, Schaak and Renzi, that infection and infectious fevers, plus a chemotaxic effect on the muscles of the vein wall, play an important role as an etiologic factor in varices of the extremity. He is led to believe that, as the veins lose their carrying power of the venous blood to the heart, they become dilated and filled with stagnant blood; that sooner or later the difference in pressure between the blood in the veins and the fluid in the tissues is equalized. In consequence of this stasis the tissues become water-logged and their resistance to infection and trauma becomes lowered because of impaired nutrition. The condition thus brought about favors the development of ulcer. A history is frequently obtained of an injury to the leg in early childhood or adolescence having become infected. Neglected wounds of this character in early life are fruitful sources of varicosities in later life. It is among the lower classes that such neglect is commonly found, which undoubtedly accounts for the greater frequency of varices among the poorer classes of people. The valves of the veins are affected and in time become incompetent and later in life the veins become dilated and tortuous. Lues is believed by many to be a common cause but in my experience it has been found only rarely. At Broadlawn General Hospital practically all chronic cases are tested for syphilis as a routine measure and comparatively few cases of varicose ulcer have been found to give a positive reaction. The exciting cause of ulcer is often due to trauma superimposed on varicose veins. A slight bruise scarcely noticeable at the time may be the beginning of a chronic ulcer. Again, a localized phlebitis with a thinning out of the vein wall, and the overlying integument, may blow out, as it were, producing a sudden hemorrhage more or less alarming to the patient but easily

controlled by pressure, leaving however, in its wake a well defined varicose ulcer.

#### PATHOLOGY

The ulcer forms usually as a result of gangrene of the overlying integument. With the stagnation of blood in the dilated, thin-walled veins and the tissues already saturated with serum exudate, the capillary circulation readily succumbs to the infection within the vessel or to the slightest offense from without. The ulcer itself may involve only the superficial skin layers but, on the other hand, it often sloughs through all the layers of the integument. These deep ulcerations frequently involve a very large area, sometimes extending more than half way around the circumference of the leg. Under favorable conditions the threatened ulcer may be brought under control and the area of skin involved made to assume a healthy appearance. I have seen recently formed ulcers clear up and film over under treatment within a fortnight.

The bacterial flora of ulcer has been extensively studied by Lowenfeld and others, but no constant bacteria have been reported present in any of the layers of the ulcer examined. The staphylococcus and streptococcus are found in all cases. Nobl, Lowenfeld and McPheeters all agree that the rapidity with which the healing process of the ulcer takes place, bears no relation whatsoever to the type of bacteria found in the ulcer. In no case has the gas bacillus or bacillus of gangrene been found.

Surrounding the ulcer, there usually is found an inflammatory area more or less tender to touch. In old standing cases the skin covering one third or half the leg, and often occupying the full circumference, assumes a dirty brown or violet discoloration. It may be thickened or thinned out in places, and varicose veins may be felt leading to the ulcer margin; such veins, however, are not always visible. Smaller ulcers may be observed, surrounding the principal one, and occasionally they are found to communicate with a diseased and thickened periosteum readily shown on an X-ray film. I have such a case now under treatment at Broadlawn General Hospital that is undergoing marked improvement. Eczema and other skin diseases are apt to complicate ulcer and varices. Eczema usually quickly clears up when the varices and ulcers are disposed of. Intractable skin disorders are, however, not always affected by the cure of the vein lesions.

#### DIAGNOSIS

The diagnosis of varicose ulcer should offer no great difficulty. It must be differentiated

from syphilitic, tuberculous, trophic and malignant ulcerations. An ulcer accompanied by large varicose veins may of course be any one of those named; and the ulcer with no demonstrable varices should be studied most carefully before pronouncing it one of varicose origin. The Wassermann or Kahn test should be made in all doubtful cases. Other types of ulcerations on the lower extremity are found but rarely. It may be repeated here, as being well established, that ulcer seldom if ever precedes or acts as a causative factor in producing varicose veins of the lower extremity.

#### TREATMENT

The treatment of varicose ulcer until recently has been most disappointing and unsatisfactory. When the varicosities are disregarded in the treatment a cure of the ulcer is rarely accomplished. If by prolonged rest with elevation of the limb the ulcer finally heals it usually returns unless the veins have been obliterated. Various measures for cure of both veins and ulcer have been proposed from time to time. Attempts to excise even small ulcers and suturing the edges have seldom succeeded. Until Babcock introduced his acorn tipped instrument for the removal of the long saphenous vein, and Mayo the improved ring vein stripper, all surgical procedures were of extremely doubtful value. Schade's operation of multiple incisions which includes the entire circumference of the leg has commended itself to but few surgeons. The modified Schade method, in which incisions are made to include only part of the circumference, is less bloody but little more effective than the original.

Smits<sup>5</sup> advocated nerve stretching, using the internal saphenous, external popliteal, external saphenous and even the sciatic nerves. He claimed that both the ulcer and varices were improved by the procedure. Corlette<sup>6</sup> divides all the tissues beneath the integument about the ulcer. Using a long bladed tenotome, he inserts it a short distance directly above the ulcer, severing all the tissues subcutaneously in an inverted V manner, extending to each side of the ulcer, including nerves, vessels, etc. Grinstead,<sup>7</sup> of Cairo, Ill., after removing the saphenous vein, cures the ulcer and makes deep crucial incisions  $\frac{1}{4}$  inch apart across the ulcer and extending  $\frac{1}{4}$  inch above and below the margins of the ulcer. Keller<sup>8</sup> removes the less tortuous veins through the vessels in such a manner that the lumen is obliterated by the formation of an organized thrombus. Unna's cast dressing has become a popular form of treatment and has succeeded quite well in many cases, especially when combined with other

measures, such as strapping the ulcer area according to the method of Boynton.

The ultraviolet ray has been extensively tried out but with little permanent improvement. The tannic acid treatment is one of the recent measures proposed. The patient is kept in bed with the leg elevated. The ulcer after being treated and freed from all infection is sprayed daily with a  $2\frac{1}{2}$  per cent solution of tannic acid. Silver nitrate has been much used and is of very great value as an adjuvant to other measures.

Most of the methods enumerated require rest in bed, which alone suffices to heal many ulcers, at least temporarily, but unless the diseased veins, which are the underlying cause of ulcer, have been destroyed the cure is seldom permanent. Since the method of Sicard, of Paris, of treating varices of the lower extremity by intravenous injection of sclerosing agents, to obliterate the lumen of the vessels permanently has become an established procedure, all operative measures for the cure of varicose ulcer are to be placed in the obsolete class.

The credit for first having successfully used the intravenous treatment for varicose veins belongs to Borcheds<sup>9</sup> who in 1910 observed that when 606 was injected into varicose veins of a patient whom he was treating for syphilis, it subsequently caused their complete obliteration and cure. Hanschell,<sup>10</sup> in 1913, being unable to locate the veins at the elbow flexure in a fat alcoholic whom he was treating for malaria, injected quinine hydrochloride, 10 grs. in 10 cc. of boiled rain water into a varicose vein of the leg which produced a thrombophlebitis and the closure of the diseased vein. The treatment of varicose veins by the injection method permanently cures the large percentage of both veins and ulcers. Genevieve<sup>11</sup> in a review of cases three years after treatment found the results entirely favorable and showed that varices did not recur nor did the ulcers return. On his service at the Necker Hospital he states that men who had been rejected for official employment because of varicose veins had after several injections, to the astonishment of the medical service, shown such improvement that their rejections were annulled by the same service. While a few of the men of the profession in this country still feebly condemn the procedure, mainly from the standpoint of danger of embolism, it has been shown beyond question to be one of the safest of all operative procedures. More than one year ago Roland Thornhill<sup>12</sup> reported over 20,000 cases that had been injected by European surgeons of note, among them being Linser 6,000, Genevieve 4,000, Nobl 3,000, Dawthwalt 2,000,



Gaugier, Sicard and Forestier more than 6,000 cases, none of whom had reported fatalities from embolism. Prof. K. Linser in his series of 15,000 cases never observed an embolus. McPheeters and Rice<sup>13</sup> in a review of the literature report 12 fatal cases from various causes and 1 nonfatal case that was diagnosed as pulmonary embolism. Two of the 12 fatal cases were in his own service, but a careful study of the report leaves one in doubt that either of these two deaths resulted directly or indirectly from the injection. Some of the deaths in the series were plainly due to septic phlebitis which, in properly selected cases and with proper technic, should never occur. In his review, all told, four cases only of embolism were found in approximately 53,000 cases in which the treatment had been given.

In the early part of Sicard's work sodium carbonate was used. It was found, however, to be too caustic in its action and was given up for sodium salicylate and sodium chloride solutions. Many other escharotics are being used with varying degrees of success. All agents depend for results upon their sclerosing properties in setting up an aseptic inflammation of the intima of the diseased vessel with the formation of a clot which gradually fills the lumen of the vein and becomes organized at the end of a few days. The clot thus formed differs entirely from the loose friable clot formed as a result of infective thrombophlebitis in that it is more adherent to the vessel wall and being tough and tenacious it is not readily detached. Postmortem examinations have demonstrated these facts beyond question. In this connection the interesting biopsy demonstration made by Hanschell<sup>10</sup> deserves quoting in full. He writes:

Recently, with Dr. J. C. Gilroy, some observations were made on a perhaps callous, but consenting and rewarded male patient in the Seamen's Hospital, Royal Albert Dock, who had many varicose veins in both legs. About two inches of injected varix were dissected out for control comparison, and also, at intervals of time, the same length of other varices, ten to fifteen minutes, twenty four hours, and seven days after their intravenous injection with one or other of quinine hydrochloride 13 per cent sodium salicylate 20 per cent and sodium chloride 20 per cent.

Naked eye and microscopic examination of the several injected varices revealed, ten to fifteen minutes after injection, no clot and no recognizable change in vein wall; twenty-four hours after injection, however, the lumen was filled with a firmly adherent clot, the intima was swollen with damaged cell nuclei, and there was round cell infiltration of the tissue outside the vein. Seven days after injection the firmly adherent clot was undergoing organization.

It would appear that the physical properties that render effective the early organization of

the clot, are the real safety factors against the production of embolus. The intravenous injection of sclerosing agents for the cure of ulcer when the veins are varicosed has the advantage of being more certain of permanent cure than any other treatment yet tried. The patient is not hospitalized, although I much prefer to do the work in the operating room of the hospital and under the same exacting conditions and preparations that are made for all other operative work, which renders the risk of infection practically nil. There is no loss of time from work. In simple cases, the treated veins disappear as if by magic leaving no unsightly scars. The Trendelenburg test should always be made before deciding on the treatment.

A simple method of testing the patency of the valves, I have found, is to place a rubber band about the limb at the lower level of the varicosities, shutting off the superficial circulation completely. The blood is then stripped out of the veins with the finger passing upward from the point of constriction. Each set of varices is thus tested as the band is moved upward. If the veins refill immediately upon releasing the finger it indicates that the valves are destroyed and the Trendelenburg sign is positive. In the main I have followed the methods of Sicard and Forestier, using sodium salicylate in from 30 to 50 per cent solutions, made up fresh in triple distilled water, and autoclaved just prior to use. The extremity is scrubbed with soap and water, bichloride and alcohol. The ulcer being cleansed and dressed, the sites for the injection are then draped with sterile sheets and towels and the area again sponged with alcohol. The patient either stands on a stool or sits on the edge of a table. The injection is made with a 3 to 5 cc. B. D. Luer syringe, armed with the smallest size needle  $\frac{5}{8}$  inch in length. No tourniquet is used and, unless very large, the veins are not emptied of blood when the injection is made. In massive veins I use the 40 to 50 per cent strength. One must always be certain that the needle is within the lumen of the vessel. If there be any doubt about it the needle should immediately be withdrawn. Should any of the solution escape outside the vein it must be diluted at once by infiltrating the area with normal salt solution. A sterile normal salt solution should always be in readiness for such an emergency. Excruciating pain is excited at the site of injection by the escape into the tissues of sodium salicylate, sodium chloride, or the mercury salts now in general use. A bad slough invariably follows the perivascular injections of these agents if left alone. Calorose

introduced by Prof. Gabor Nobl, of Vienna, and invert sugar used by Dr. C. H. Witte, of Milwaukee, are not so injurious to the perivenous tissues. However, the sugar preparations are not as reliable as the other agents.

If the veins involved are not extensive the injection may be completed at one sitting. I have injected more than 25 cc. of 30 per cent sodium salicylate at one sitting with no untoward results. Each puncture point is covered with a pledget of cotton and held firmly for a few moments to prevent escape of the fluid. The leg is then bandaged with a heavy closely knit elastic cotton bandage as a support. The ulcer is covered with fluffed out gauze over which is applied a thick layer of absorbent cotton. Over this is placed a rubber sponge, as recommended by James Devane,<sup>14</sup> of Dublin, large enough to extend at least one inch beyond the borders of the ulcer. Unless they occur very close together each ulcer requires a separate sponge. The bandage is to be applied tightly over the sponges; the rest of the way up to the knee it may be applied with less pressure, enough to completely collapse the veins. This dressing is applied when the patient is ready to leave the room, a half hour or more after the injection is completed.

To further the healing process, large ulcers may require skin grafts, while small sized ulcers heal readily once the affected veins are closed. Small ulcers in patients under 50 years frequently heal over within a fortnight. On the other hand, ulcers of long standing in elderly people require much more time and patience. Skin grafts of course are not to be undertaken until all the infection has been eliminated. Silver nitrate in from 20 to 30 per cent solutions is applied in most cases at the first dressings, occasionally weaker solutions are required afterwards. McPheeters lays stress upon the necessity of continuing the support in all aggravated cases of ancient ulcers and varicosities for an indefinite period. Some patients, he believes, may require some sort of protection during the remainder of life. In some of the old ulcer cases I am now using paroidin, a hormone of the parathyroid introduced by Dr. Adolph Hanson, Faribault, Minn., and used quite extensively by Dr. H. O. McPheeters. In a recent personal communication from Dr. McPheeters he states that under the hypodermic administration of paroidin one can raise the blood calcium more than with any other product. He regards it as being of very definite value in extensive ulcerations of elderly people.

Dermatitis and eczema are to be treated ac-

cording to approved methods. Skin lesions that are curable tend to clear up with the obliteration of the veins and healing of the ulcer. To inject small tortuous thin-walled movable veins, requires considerable skill and should not be undertaken lightly, especially by one who has difficulty in entering normal veins. Care should be exercised in selecting cases for treatment. The varices resulting from infective thrombophlebitis should not be treated until all danger of infection has been eliminated. Injection treatment of varicosities during pregnancy should not be attempted until after the child is born. Many cases clear up soon after delivery. One should, as accurately as possible, differentiate all phases of integumental diseases of the lower extremity for, unless the pathology is correctly interpreted in each individual case, grief will almost surely overtake haphazard attempts to cure by this method. For example, two patients were recently referred to me for treatment of ulcer neither of whom had any well defined varicose veins. One was a man of 70 who had worn bandages on both legs for several years in order to protect against injuries. He had a small abrasion on one leg caused by striking his limb against the running board of the car he was boarding. No well defined varicose veins were found but the integument of both legs was discolored, thin and translucent. The injuries he said always healed without much difficulty. Another case was examined at Broadlawn General Hospital. This middle-aged woman presented discolored lines,—not varicose veins,—along the anterior aspect of both legs from the knee to the ankle. Small abrasions, some the size of the finger nail, were noticed here and there over the anterior aspect of the limb and a few enlarged veins also were obvious but on testing the valves they were found to be in normal condition. This patient was referred to my friend Dr. H. C. Willett, dermatologist, who pronounced it a case of self-inflicted lesions,—dermatitis factitia. I make brief mention of these cases to call attention to the types of cases that occasionally come for treatment.

#### CONCLUSIONS AND SUMMARY

This paper is based upon a thorough review of the literature on the injection treatment for varicose veins and ulcers and clinical results obtained in 212 cases injected, 48 of which had ulcer complications. This is a much larger percentage of ulcer cases than have been noted in other clinics. I have kept no accurate record



of the number of injections made. Very few cases, however, have required more than three injections to effect a complete closure of the diseased veins.

The youngest case of varicosities treated was 23 and the oldest 78. I do not consider the injection treatment contraindicated in aged people provided their general condition is good.

The cure of ulcer depends almost entirely upon the complete closure of all the varicose veins leading to or from it. Occasionally a single vein lying immediately beneath the ulcer, having escaped the sclerosing agent, will prevent its complete healing. After reinjecting the vein the unhealed ulcer area rapidly undergoes complete repair.

The manner of applying pressure to the ulcer and treated veins is very important. While this is one of the oldest it is one of the most dependable parts of the performance in the modern treatment of varicosities.

Operative treatment is no longer to be advised. The scalpel, ligature, vein strippers, etc., are to be consigned to the scrap heap in the treatment of varicose ulcer.

The advantages over all other older methods of treatment are: (1) No anesthetic whatever is required as there is practically no pain. (2) The patient is not required to remain in the hospital, thus saving an expense, but continues to work as usual and with a greater degree of comfort from the beginning of the treatment. (3) The danger is far less than by any other method. In properly selected cases it is almost nil.

I am indebted to my associate, Dr. H. B. Henry, for his assistance in the translation of the French literature at my command.

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## THE PROGRESS OF DIAGNOSTIC METHODS\*

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It is upon request that I attempt to treat this subject. My acceptance was thoughtless for I did not realize the vastness of the matter. Certainly you will forgive me if in the time allotted I will leave much unsaid. Since my friends were particularly interested in the value of roentgenology, most space will be allotted to this procedure.

Diagnosis, coming from the Greek *dia* apart and *gnosis* knowledge, means in our science distinguishing one disease from another.

In its progress through time the science of medicine has had to lean on other sciences for support and has incorporated still others into itself.

Mythology intrudes itself into our subject and we are told of Aesculapius to whom temples and tablets were dedicated for his success in the art of healing. Jealousy,<sup>1</sup> then born in Chiron, and living today, plus the anger of Jupiter were the causes of the early death of Aesculapius by means of a thunderbolt. While we rejoice to know that by reason of his fame Aesculapius was given a place among the constellations, we must sorrow that no records of his methods are extant.

Primitive man, wherever he was found, differed from beasts essentially in so far as his mind was concerned. He slew his food, raped his women, fought with the weapons nature provided him with, and probably licked his wounds. Nevertheless, he is credited with having made attempts to interpret the ways of nature by most of which he was frightened. The elements caused profound fear in him and he classed them as evil spirits. Into this category he also seems to have placed his illnesses.

In the course of time, as man's mind developed, the medicine man was born. He attempted healing by burning sacrifices in all humbleness, or by adopting terrifying costumes and violent attitudes, depending on whether he would implore a deity for pity or instill fear into a demon. Perhaps this was the beginning of differential diagnosis.

We advance well into ancient history before methods which approach exactness, the products of good reasoning, are recorded. This is so whether we investigate Egyptian, Oriental, Mohammedan, Roman or Greek medicine. Early Greek medicine maintained the best

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records hence is best known to us. Here, Hippocrates comes into prominence.

Wherever we read of Hippocrates he is called the Father of Medicine and is given credit for having placed the science on a proper basis. In his time there were no instruments of precision and practitioners developed the uses of their senses and the exercise of their judgments. Thus, it is well known that Hippocrates, 460 before Christ, shook his patients presenting symptoms of disease of the chest, to ascertain by the splash the presence or absence of fluid within the thorax. Today the Hippocratic succussion sound is still sought for at times. It is plain then that Hippocrates and his co-workers depended largely on considering the subjective symptoms of their patients, employed inspection and palpation where feasible and auscultation to a much less extent and in crude manner. How different the procedure of today, when we should employ our senses so much more extensively, both in direct examination of the patient and in the use of numerous instruments to aid us.

It is at once apparent as one considers the history of medicine that advances in the science have been made in steps with long stationary periods between. Only now and again a courageous thinking leader has been born. It does not seem so queer then that immediate percussion of the chest and pectoral fremitus were not recognized until 1751 by Leopold Auenbrugger.<sup>2</sup> Also that Laennec<sup>3</sup> was waited for until 1819 for a stethoscope.

Without the armamentarium mentioned in early years and with it later, all diagnoses of the then known diseases of the chest were made, except that in 1830 the sphygmograph introduced by Marey<sup>4</sup> was an aid in the diagnosis of diseases of the circulatory system.

Most all the present day diseases were described years ago, the better after an increased knowledge of anatomy following the treatise on the subject by Vesalius<sup>5</sup> in 1543; but many of the details were lacking. The study of diseases by observation of their symptoms and courses by the old masters was so keen as to excite our astonishment and admiration today when, sad to relate, we are sacrificing these qualities too largely for what the laboratory yields.

In 1659 Kircher and in 1675 Anton van Leeuwenhoek<sup>6</sup> published their findings of lenses by means of which they could detect "animalcules" in a drop of water. These lenses were the basis upon which the compound microscope was finally built. The above dates might also be called the birthday of bacteriology. When stains and culture media were

brought into use, especially by Koch, the physician possessed added means of differentiating diseases of the respiratory tract which on physical examination often gave very similar signs.

Minute pathology may well be classified as a twin sister of bacteriology. The two have developed side by side as twins should. They could develop only as the microscope improved. The microtome and fine cover glasses were important addenda.

Now came intelligent reports from the post-mortem room or histological laboratories which confirmed or found false the physician's diagnosis. In either case the physician gained a knowledge which aided his future efforts.

After inspection, palpation, percussion, auscultation of the chest, with microscopic examination of sputum, blood and urine and sphygmographic tracings, there were, in spite of the knowledge of gross and minute anatomy, sound and morbid, diagnostic errors and uncertainties in plenty.

"Thirty-three years ago a new star arose on the scientific horizon which threw wonderful rays of an unknown nature on the world." Carl Roentgen was the astrologist who gave his rays the name of X because he could not fully understand them. In the early years these rays benefited diagnosis to a very limited extent since they were useful only to yield shadows of very dense structures. Time and effort have brought about great changes and the refinements in our possession today permit us to apply the X-rays to most all structures in the body, with enlightenment to ourselves and benefit to our patients.

As applied to diseases of the respiratory tract we find by X-ray soft apical markings before there are supraclavicular depression, lagging, rale, increased fremitus, or shortened percussion note. In addition, by the density of the markings, we note whether the process is old or recent. This is no justification, however, for sending a patient to a sanatorium. Every link in the chain of diagnostic evidence must be accounted for. Chill, high fever, cough, and rusty sputum would make one suspect pneumonia. In the absence of dullness on percussion bronchial breathing and crepitant rales your suspicions are not confirmed. Roentgenologically, then, a central pneumonia is noted. In children with high fever and the physical signs of bronchitis one thinks of bronchopneumonia only because of high fever. The X-ray film shows us the densities. No one will profess ability to outline by physical signs a pleuritic exudate of one half ounce. By means of the X-ray the costophrenic angle will



be seen to have been obliterated by such an amount, setting at rest the question, "Is it pleurisy or intercostal neuralgia?"

Our physical signs do not permit us to discover small new growths in the lungs and large ones give us some trouble in differentiation. X-ray examination usually removes all doubt. Of miliary tuberculosis the same may be said.

Not so long ago I saw a specialist percuss the chest and with a dermatograph mark out for me the greatly increased "mediastinal glands." Just a few days later my X-ray film failed to reveal any densities about the mediastinum or hila that could give such percussion notes. I have also noticed the reverse. At this point let me emphasize that roentgenographically hilus densities and mediastinal glands, be they hypertrophic, inflammatory, or neoplastic, are detected early.

In about 1827 Cruveilhier recognized round ulcer of the stomach as a typical well characterized disease form. In 1856, C. Canstatt,<sup>8</sup> in his textbook on special pathology and therapy, describes the pathology and symptomatology of this disease accurately, but in his paragraph on diagnosis quotes Andral and concurs, saying that unless the carcinoma is palpable, the differentiation between it and ulcer is impossible. Also that nervous cardialgia cannot always be differentiated from ulcer unless hemoptysis occurs.

This defenselessness continued until after Leube<sup>9</sup> in 1871 employed the stomach tube and invoked chemistry, microscopy and bacteriology for diagnostic purposes. Since then we find achlorhydria or chlorhydria and its degree. Further, we learn whether any acidity is due to organic or inorganic acids. We determine whether ferments are present and adequate. We can detect, when present, pus, blood, and other cells as well as microorganisms, be they yeasts or of higher order. By inflating the stomach we get an impression as to its size and position. By withdrawing of the contents at stated intervals we find the stomach's emptying time; all factors aiding to build valuable diagnostic evidence.

Now, as physiological function of the stomach was learned, the different forms of gastritis were recognized. It was noted, too, that in ulcer there was hyperchlorhydria and in carcinoma hypochlorhydria with the *Oppler-Boas bacillus*. Kussmaul, Leube, Von der Velden, Nothnagel, Jaworski, Boas, Ewald, Klemperer are the names of the men who aided the great advancement in diseases of the stomach between 1871-1887. No marked progress was made thereafter until the X-ray came to our aid. There is now hardly an ex-

cuse for failure to diagnose any disease of the stomach and intestines early if the patient will cooperate and the physician apply himself. For by means of the X-ray we observe an opaque meal pass from mouth to anus and on its way it gives us visible evidence of motility, mobility, deformity, obstruction and placement. Now we do not hesitate at confirming the presence of an ulcer in stomach or duodenum, but we scrutinize the tonsils and by means of the X-ray learn about the appendix and gallbladder what before was often not known until the abdomen had been opened. More than that, we project the searching rays upon the jaw and find the apical dental abscess as the focus causing no symptoms locally but polluting the blood stream with organisms which undermine the health. It is at times most spectacular to note how rapidly the symptoms of ulcer of the stomach or duodenum disappear after the extraction of an abscessed tooth.

Since the time of Einhorn and Rehfuess we pass our tube into the duodenum and extract its contents including that of the gallbladder. Valuable information is gained thereby.

If now, we attack the other end of the digestive system we note on inspection that blood in the feces might have been caused by hemorrhoid, fissure in ano, fistula, ulceration or malignancy of the anus. By digital examination one perceives the presence of ulcer, polyp, hemorrhoid, stricture of the rectum. By proctosigmoidoscopy we are enabled to get a view of the lower 10 inches of the bowel and recognize pathology, also nematodes and secure specimens of growths or bowel contents for microscopic examination. By means of the X-ray we confirm many of the findings enumerated and learn whether the large bowel in any portion of its entire length is spastic, dilated strictured, ulcerated, deformed or displaced. No longer do we merely listen to a patient's story of rectal tenesmus with hemorrhage, offer him a suppository and tell him to come back next week.

We use our eyes to note a caruncle, erosion, ulceration of the urethral meatus, we also observe a relaxation of the anterior vaginal wall. By instrumentation we determine location and degree of stricture. By palpation we find a diseased prostate or a pelvic tumor. A cystoscope lights the way within the otherwise dark bladder which must now present its size, state of mucosa and often its musculature, and last but not least its contents, e. g., stone, hairpin, polyp, ulcer, inflammatory state, and so on. Catheters can be passed to each kidney and urine collected and examined separately. A dye injected into the veins reappears in the

urine and each kidney's function for dye output can be known.

By means of X-ray urethral and bladder deformities and diverticula are found as are bladder calculi. The knowledge of size and position of kidneys, the course of the ureters and their patency is ours. Renal calculus is made easier to find since a catheter impinges on it. By injecting opaque material through the catheters the outline of kidney pelvis is given which indicates such deviations from the normal as hydronephrosis, ptosis, kidney tumor, and brings more clearly to view a calculus. Let us not forget that kinking and stricture of the ureter can be definitely proven.

The same penance will go to that one of us who still says cystitis and nephritis to every vesical tenesmus and albuminuria, as must be meted out to him who applies the diagnosis of gastritis to every dyspeptic syndrome.

In considering the diseases of the female generative organs no marked advancement in diagnostic methods has been made except in the X-ray field. History, inspection, palpation, hoary with age, are still the stand-bys. But by injecting the uterus and tubes with opaque material we can learn roentgenographically whether occluded tubes are obstructing pregnancy and whether a pelvic mass is intra-uterine or extra-uterine.

In the realm of infectious diseases a gigantic amount of work has been done, chiefly, of course, bacteriological and hematological. Now, by microscopic and cultural examination of the blood, we can positively differentiate between typhoid and estivo-autumnal malarial fever, and by agglutination tests diagnose Malta fever. The toll formerly exacted by malaria, yellow fever, dysentery, no longer offers itself since improved diagnostic methods, microscopic and bacteriologic, have led the way to effective prevention and therapeutics.

I must not forget to mention rheumatism which is about to be rebaptized with a name that means something, perhaps acute multiple arthritis. This is due to the circumstance that we are able to find the focus which feeds the blood stream with the coccus or bacillus afflicting the joints and endocardium by isolating the same germ from focus and joint by culture methods.

The finding of the gonococcus years ago and of the *Spirochaeta pallida* more recently has together with the advent of Wassermann test given us an indication how to save and cure ourselves and offspring of the two violently maiming and death dealing social diseases.

The diagnosis of bone diseases remained *in statu quo* of years gone by until the Roentgen

ray came to our aid. Now, many injuries are recognized as fractures which would have been treated as sprains. Ununited fractures are easily detected. Osteomyelitis can be recognized when the destructive process has barely begun, when only pain and fever are present. Tuberculosis of the bone is recognized by its characteristic shadow of destruction on the film, and benign bone tumors are differentiated definitely and early from the malignant by the absence of new bone formation in the latter. Rickets and scurvy are positively identified roentgenologically by evidence of epiphyseal changes when clinically there is doubt. The frequency of bone anomalies was never realized until the Roentgen ray was given to us.

In recent years the new chapter of endocrinology has been established in medicine. Because of its youth and principally because it must be studied to a great extent through surgical procedures for which lower animals must be utilized, progress is slow. Nevertheless, the cretin is now pitied and not derided. Too, the woman in the menopause is no longer named the "Hysterischer Donnergast" and given vile medicine for her nervous symptoms and viler medicine if she returns, but at once gains our sympathy, encouragement and even great relief. This, because by animal experimentation and by observation of individuals operated upon an intelligence is being gained concerning the function of the seductive ductless glands.

Just a line to remind you that the X-ray is of service even here for by means of it something can be learned of the pituitary gland, bone changes (acromegaly) consequent on the disease of this gland giving characteristic pictures.

If I may enter the domain of the specialist I can call your attention to the diseases of the accessory sinuses of the head. Pus seen oozing into one of the nasal fossae is the telltale evidence that all is not well within the respective sinus. By transillumination of frontal and maxillary sinuses evidence is fortified. Roentgenographically, especially if sinuses have been injected with opaque material, still more evidence is often at hand. The final link to complete the chain is forged when by means of aspiration of the sinus pus is recovered. Since the intensive studies of these hidden pockets, and the late Dr. Greenfield Sluder was a peer among the students, many a headache has been cured, many a mind and life saved.

Now, while my subject has not been exhausted, no doubt you all are. May our medical science, if it must plod, continue according to the Latin proverb, *gutta cavat lapidem, non*



*vi sed saepe cadendo*, so that by virtue of persisting further work the fountain of youth may eventually be found. This will insure many more meetings of the Southeast Missouri Medical Association with all of us present.

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## ASCARIS LUMBRICOIDES CAUSING COMMON DUCT OBSTRUCTION\*

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ST. LOUIS

*Ascaris lumbricoides* since it was first described by Linnaeus in 1758, has excited sporadic interest in the surgical field, although textbooks on surgery seldom refer to it.

The *Ascaris* is one of the parasites most frequently found in man and normally inhabits the small intestine, but occasionally it migrates through open channels to other parts of the body and may cause serious disorders. Man is the best suited of all species for the development of the *Ascaris*, no intermediate host being necessary. Stiles<sup>1</sup> reports finding the *Ascaris* in 1.1 per cent of 8029 people in the United States in 1925. Stewart,<sup>2</sup> in 1916, described the cycle of development, which is interesting. The larvae, liberated in the small intestine, migrate to the liver through the portal circulation and after a brief period, pass into the lungs through the right heart. They grow to from 1 to 2 millimeters in the air sacs and then pass up the bronchial tree to the pharynx, down the esophagus and into the small intestine where they mature into worms. Migration from intestine to intestine is complete in from 7 to 10 days. Ransom and Cram,<sup>3</sup> in 1921, found that the larvae enter either veins or lymphatics of the small intestine and eventually reach the lungs via the right heart.

*Ascaris* subsists, partially at least, upon blood obtained from attacking the intestinal wall, and the fluids of its body are known to be toxic. Flury has demonstrated that the

fluids cause local reaction in the tissues with subsequent swelling and may lead to necrosis. No record is available as to how long the *Ascaris* can live in the human but the probable duration is from 3 to 5 years. Experiments have been performed by keeping the mature worm in sterile bile media obtained from fistula, but eight days was the greatest length of time any of the worms lived.<sup>4</sup>

Textbooks report that it has been found in different parts of the air, food and blood passages, and its wandering during febrile conditions and especially postmortem is a well known fact. Boettiger and Werne<sup>5</sup> report finding two worms 10 centimeters long in the cavity of the right ventricle of the heart of a woman who died from pulmonary thrombosis.

Belleano found the *Ascaris* in a costal tumor of a child 2½ years old. Numerous references are made to finding the worm in gangrenous appendices and Page<sup>6</sup> reports one case where it was found in the abdominal wall over the region of the appendix. However, authors are divided in the opinion as to whether or not *Ascaris* can perforate a normal intestine.<sup>7</sup> The *Ascaris* causes liver abscesses next in frequency to the ameba. Twenty cases of ascarides causing liver abscesses have been reported, and the same number have been found in the urinary tract,—something which is very hard to explain. Cases of intestinal obstruction from large clumps of the worms have been reported.

Penetration by the worms into the bile ducts and other parts of the body after death cannot be considered a rarity (Wistar and Horner Museum of the University of Pennsylvania shows a specimen of one in the bile ducts), but the occurrence of the worm in the biliary passages in the living is to be regarded as still less frequent.

Sick,<sup>8</sup> in 1901, collected sixty-three cases in the literature, two of his own, relating to invasion of the bile ducts by ascarides.

Stiles,<sup>1</sup> in 1925, mentions one hundred reported cases of worms wandering into the bile ducts but does not state whether in the living or postmortem.

Aviles<sup>9</sup> reports a case of a worm causing cystic duct obstruction while Morton<sup>10</sup> reports removing one from the gallbladder of a farmer and reviews five similar cases, all he could find reported in literature.

Rigby<sup>11</sup> and Novis<sup>12</sup> each report separate cases of *Ascaris* in the pancreatic duct causing pancreatitis.

Preston<sup>13</sup> found the ova of ascarides in the

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liver and gallbladder specimens of bile obtained from transduodenal drainage, and also recovered ova in the gallbladder after it had been removed. The worm was not found and it was concluded that there was a female worm in the liver due to the fact that ova were recovered some time after operation. Tyau<sup>14</sup> likewise reports finding ova of ascarides in the gallbladder and bile ducts.

Labbe and Denoyelle<sup>15</sup> had a case of a young woman suffering from jaundice without fever or pain. Vigorous santonin treatment brought numerous ascarides in the stool and the jaundice cleared. They concluded that worms had obstructed the bile duct and advised examination of stools in all catarrhal jaundice cases of uncertain nature.

Brayne<sup>16</sup> found numerous ascarides in the common duct and liver on immediate autopsy following the patient's death shortly after leaving the operating table.

Two cases of infection of the duct system before 10 years of age were reported by Eberle<sup>17</sup> and Hortolomei.<sup>18</sup> One caused jaundice and the other pain only.

Tsujimura<sup>4</sup> reviewed thirty-three cases of duct invasion by ascarides. In eight of the thirty-three cases worms only were found. In all the others stones and worms. Bertoni,<sup>19</sup> in a review of thirty cases, found stones in 73 per cent. They were unable to say whether or not the trauma by ascarides, with infection following, was a forerunner of stones.

#### REPORT OF CASE

*Present History.*—Mrs. B., two months prior to entrance had her appendix removed, some stones taken from the gallbladder and drainage provided. Her history, previous to that operation, was typical of gallstones with common duct involvement, causing jaundice and chills on two occasions. The surgeon reported finding an inflammatory mass at the distal end of the cystic duct. Stones could not be palpated in the ducts and this mass was not disturbed nor were the ducts opened. Her recovery was uneventful but on returning home she had a recurrence of her former trouble with jaundice and fever following each attack. Morphine was always required for relief of the pain. She entered my service at St. John's Hospital on March 5, 1929.

*Personal History.*—Patient has nine children, all living and well. Menopause four months ago. Past and family history essentially negative.

*Physical Examination.*—Well developed, well nourished, white female, aged 52 years, weight 185 pounds, height 5 feet 3 inches, skin slightly jaundiced. Head, negative. Eyes, pupils equal and regular; react to light and accommodation. Ocular movements normal. Sclera jaundiced. Mouth, teeth carious, pyorrhea extensive. Chest, heart and lungs negative; blood pressure 130/80. Abdomen, right rectus scar well healed, slight tenderness over

liver, no rigidity, no tumor masses palpable. Pelvic and rectal, negative. Extremities, well developed, muscular movements normal, all reflexes normal and active.

*Laboratory Examination.*—Urine, medium trace of albumin and positive for bile. Blood, leukocytes 7,150, red cells 3,870,000, hemoglobin 70 per cent, clotting times 3 1/3 minutes. Blood Wassermann, negative. Smear, lymphocytes 14 per cent; mononuclears 4 per cent; polymorphs 80 per cent; basophils 2 per cent; eosinophils 0.

Gallbladder visualization not done due to the presence of jaundice.

*Diagnosis.*—Common duct obstruction, probably stone.

*Description of Operation.*—The abdomen was opened through the old scar. The gallbladder and duct system were isolated with difficulty due to numerous adhesions. The liver appeared normal. Except for slight thickening the gallbladder was normal. No stones were palpable in the gallbladder, cystic, common or hepatic ducts. The common duct was about two centimeters in diameter at the junction with the cystic duct and was doughy to the touch. The common duct was aspirated and a few drops of bile removed. A longitudinal incision was made over the swollen area and a soft, greenish material exuded. A grayish body then appeared in the opening and, on being removed, proved to be an *Ascaris lumbricoides* 8 3/4 inches in length. The common duct flattened out after the removal. Probes and scoops introduced above and below revealed nothing more. Ampulla of Vater was patent. A few interrupted sutures were placed in the incision and a drain in the foramen of Winslow. Fearing the duct had perhaps been so damaged by the *Ascaris* that a stricture might develop, the gallbladder was not removed; the abdomen was closed in layers about the drain.

Recovery was uneventful and the patient is still well, and up to the present time twelve months following operation) has had no attacks. Patient stated later that she was treated for worms fifteen years previously and passed a large number but has never noticed any since that time. Her gallbladder history was of four years' duration. Following the operation an examination of the stools after thorough purging with santonin and calomel did not reveal any larvae or worms.

University Club Building.

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## TULAREMIA

## REPORT OF THREE CASES \*

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Tularemia was first described by Francis and McCoy in 1911 as a plague that killed ground squirrels in Tulare County, California, (hence the name tularemia). It seems to be confined to the United States principally, but it is found in Japan and a few cases developed in London from handling specimens sent for investigation from the United States. While tularemia would seem to be a rare disease, only about 500 cases having been reported, there must be many cases overlooked for it now seems to be very widespread. Reports come from a number of different states and in but few instances have there been more than one case reported from the same community. It seems to be transmitted principally from the rabbit and squirrel and the parasites that live on them or those that bite both humans and animals.

The average time of incubation is from 3 to 6 days, onset usually sudden, with chill, high fever, vomiting and prostration. Glands draining the area of the bite or wound are usually swollen and symptoms of infection follow.

The first case that I will report did not have this line of symptoms. It was an interesting case not only because of the rarity of the disease, but because of its association with an already sick patient, which made the diagnosis more difficult. The patient being slightly below par mentally made it difficult to obtain a proper history.

## REPORT OF CASES

Case 1. A woman, aged 44, married, white, entered hospital Aug. 22, 1928. For over a year she has been failing, complaining of frequent headaches, loss of weight, pains in both upper quadrants of abdomen, urinary disturbances and severe nervous breakdown. Became somewhat better, then had a relapse but could not give definite dates.

March 1, 1928, moved to a different farm and from that time has been practically bedfast. For several years she had nocturia of at least once, and occasional burning. Since being bedfast there has been at times anuria for as long as 24 to 36 hours, and then very small amounts produced. At other times there is retention of large amounts of urine. Now has frequent desire and considerable burning. Pains severe in both kidney regions and very tender to touch and palpation. Tender over the abdomen. Has lost considerable weight; at times has diarrhea and at other times is constipated with attacks of jaundice and loss of appetite. History of frequent sore throat. At times has delirium of low muttering type, and becomes so nervous that she jerks and twitches, especially in the left arm. Has

had swelling of feet and lower limbs. No nausea nor vomiting.

Physical examination revealed head normal except teeth very bad. Tongue coated in center with very red and smooth edges. Chest normal. Abdomen normal except mass in lower left, which proved to be dilated bowel filled with gas. Extremities normal except built-up sore on legs which resembled wart very closely. Would not scale but bleeds on scraping. Skin dusky but not jaundiced, otherwise normal except the sore referred to. No history of having cleaned rabbit.

*Admission Diagnosis.*—Chronic interstitial nephritis and pyonephritis; second, typhoid or undulant fever; third, pellagra; fourth, pernicious anemia.

*Family History.*—Mother of twelve children, eleven living and healthy. Last child died at the age of five months of pertussis; never was strong. Child would have been a year old in April. No history of cancer, mental disease or tuberculosis in family.

*Past History.*—Had diseases of childhood including scarlet fever. Influenza and pneumonia severe in 1918. Stomach trouble quite severe three years ago. Kidney trouble intermittent past three years. Severe sore throat several times each year; last time two months ago.

The laboratory findings over a period of 5 days failing to assist in arriving at a diagnosis I went further into the history of the case.

*Supplementary History.*—Upon more careful examination and questioning additional information was obtained. Often while in the woods near the house the patient would get fleas on her body. A week or two before getting sick she had some fleas on her and scratched her limb, breaking the skin. The latter part of March she cleaned a squirrel. Several days afterward she chilled very hard and for several days had chills daily followed by profuse sweats, leaving her very weak and keeping her bedfast. Ran a moderately high temperature. Physician attending did not make a diagnosis.

In June a large ulcer appeared on the right leg, not tender or sore, at junction of lower and middle third over the tibia. Size 3 cm. by 1 cm. covered with a large, dirty, built-up scab hard to detach and leaving a raw bleeding surface. In July a similar but smaller ulcer appeared on the other leg, size 1 cm. by 1 cm. September 1, nine days after entering the hospital, six similar but smaller skin lesions appeared around the present lesion on right leg. These lesions had clean-cut ulcer edges, the floor built up of dirty, raw, granulating tissue that bled as only diseased tissue does. No treatment had been given these sores. This history with the sores is what helped lead to the suspicion of tularemia. Sept. 1, 1928, the tularemia report was positive, dilution 1:40. September 10, positive, dilution 1:20.

Treatment was symptomatic. Upon admittance, being very weak and refusing nourishment, 500 cc. of 10 per cent glucose was given intravenously. Proctoclysis of sodium bicarbonate solution until 1000 cc. were given. Light diet; fluids pushed in order to encourage kidneys. As the kidneys responded and the patient became "water logged" the amount was decreased. High caloric diet toward end of stay in hospital.

Catheterized for the first 8 days (being unable to void) and bladder irrigated with boric acid solution. Enemas and cascara given for the bowels and luminal to induce sleep. Skin lesions were treated with silver nitrate and healed slowly. Patient left the hospital Sept. 17, 1928, still weak and emaciated but showing general improvement.

\* Read before the Randolph-Monroe County Medical Society, January 8, 1929.

Case 2. Man aged 34, farmer, came to hospital Nov. 30, 1928, with swollen hand and glands draining the area up the arm and red streaks following the lymphatics. Gave history of having been hunting about a week prior and scratching his hand on a briar, and skinning a rabbit soon afterward. That night developed chills and fever and has been very sick ever since.

I suspected tularemia; a blood test came back negative. I did not see him again until December 30, when he came to the hospital with a history of having been treated elsewhere. The lymphatics had remained swollen and became larger until December 29 when he had several incised and drained pus from every one of them, the one in the axilla being about the size of a walnut. I still insisted that he had tularemia and took a second specimen of blood for examination. It came back today, positive with dilution 1:640.

Case 3. Male, aged 46, filling station attendant, entered hospital January 2, 1930. Walked on crutches; ankles and feet much swollen and red. There were a number of irregular shaped ulcers on the ankles, all draining pus. Stated he felt like he had rheumatism in all the joints. Gave history of being strong man until present trouble began. He went hunting, killed, carried, and cleaned rabbits several times during the months of November and December. Had no sores on hands and knew of no cause for present trouble. He took sick, however, about the middle of December; ulcers appeared soon after that. Blood specimen showed positive tularemia.

#### MODERN DIAGNOSIS

In a brief summary of modern diagnosis, James B. Herrick, Chicago (*Journal A. M. A.*, Feb. 16, 1929), says: The thought centers about the general practitioner. He is able to diagnose the majority of commoner ailments as well as a large proportion of typically frank, rarer, serious examples of well known disease. Often, however, in order to tell what is the matter in a complicated or obscure case he must appeal for help to the clinical or laboratory specialists, who may work singly or in groups. In doing this he should realize that the specialist may be narrow minded, the technician incompetent to interpret in terms of bedside disease. The group diagnosis may be lacking in information as to the essential detail, which may be lost in the blur of a characterless composite picture. The physician should not stubbornly refuse to accept the new nor should he be carried away by its supposed scientific accuracy. He should learn to employ the laboratory and instruments as important or, at times, indispensable aids to the older methods of history taking, physical examination and personal contact. In order rightly to judge of the need and value of special examination in a given case, he should have had undergraduate training in more than the so-called essentials of medicine. In one or two branches his studies should have been of an intensive, concentrated character that enables him to understand his own limitations and those of others. This will make him a master in some one branch, with a self-respect that comes from the consciousness of power, will give zest to his work, will arouse in him the desire to continue such study into his life of practice and even to do investigative work of his own. It will make him a contented, forceful, progressive practitioner who can trust himself and therefore be trusted by others in that most important function of the physician, the telling of what is the matter with those who are ill.

## WASHINGTON UNIVERSITY CLINICS

### OSTEOMYELITIS OF THE JAWS

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In other reports from this department the advisability of general conservatism in the treatment of infections of the bones of the jaws has been expressed.<sup>1, 2, 3</sup> A summary of 39 patients published in the second and third reports is recorded here (Table 1). Since this publication, 62 more patients have been treated for osteomyelitis of the jaw and in these the incidence of associated dental trauma has been about as frequent, as will be seen in Table 1. (Fracture cases not included.)

Because of the continued frequency of this condition, it has been thought to be of some possible advantage to reprint the following from "The Ulcerated Tooth."<sup>1</sup>

The above term commonly designates an acute exacerbation of a previously quiescent periapical infection; this naturally and by common consent will call for the ministration of the dental surgeon. The attack may terminate or be terminated in one of several ways. After two days of suffering an abscess may perforate the bone causing the typical "gum-boil" or less commonly it may burrow out alongside of the root of the tooth. The dentist may get drainage through a root canal, or an attempt may be made to abort the process by extracting the tooth. The latter treatment has the virtue of precluding future attacks and may be followed by quick recovery, by a more or less protracted or stormy convalescence, or occasionally by death from general sepsis.

It was an old teaching in dentistry that these teeth should not be pulled during the period of acute swelling, and there is often sound clinical observation back of these older teachings. With more modern and antiseptic technic, the general trend is to substitute active intervention for cultured conservatism and above all, with the advent of the "exodontic" specialist, this older teaching lost precedence. The apparently more rational procedure of establishing free drainage and at the same time removing the supposed focus is apt to appeal more strongly to the new dentist. This procedure has been compared to the removal of an acutely diseased appendix but the simile is inapt because the appendix is the focus of the infection while the tooth is at this time but an inert plug. In their results the two procedures do not parallel and the observer standing on the side line, who takes occasion to sort over the wreckage, is apt to conclude that the average results do not justify the extra risk inherent to early extraction. In a certain small percentage of cases the reaction is accompanied by an increase of symptoms, or is followed by abscess formation, or extensive bone necrosis. In addition to this, some young or apparently robust people will die from general sepsis following the extraction of



Table I

Number of Cases: 18 Children, 21 Adults (11 Male, 10 Female)

Cause .....	<p>Apparently associated with periodontal infections, 33.</p> <p>31 of these were associated with extraction during acute state of a periodontal infection. Of these 31 acute infections, there were 2 following devitalization of the pulp with arsenic, and 1 following application of phenol to the pulp chamber.</p> <p>1 associated with salivation, HgCl.</p> <p>1 associated with extraction of an old root.</p>
Other causes than teeth, 6.....	<p>1 associated with gland enlargement and loosening of teeth.</p> <p>1 following tonsillitis.</p> <p>1 following measles.</p> <p>1 following diphtheria.</p> <p>1 associated with tuberculosis elsewhere in the body.</p> <p>1 associated with upper respiratory infection in an infant.</p>
Jaws affected.....	<p>Upper, 8.</p> <p>Lower, 32 (both jaws in one case of suspected syphilis).</p>
Wassermann .....	<p>Negative, 17.</p> <p>No report, 18.</p> <p>Positive or partly positive, 4.</p>
Salvarsan .....	<p>8 cases.</p> <p>3 with negative Wassermann improved.</p> <p>3 with negative Wassermann, but no note of improvement.</p> <p>1 with positive Wassermann, but no note of improvement.</p> <p>1 with positive Wassermann, but treated before jaw was operated on.</p> <p>(2 cases with positive Wassermann had HgCl—2 and K.I. treatment only.)</p>
Time elapsed between the appearance of first symptoms and the spontaneous throwing off, or the operative removal of sequestra in various cases.	<p>1 at one week, bone-cutting operation on upper jaw—death.</p> <p>1 at three weeks, spontaneous separation, upper jaw.</p> <p>2 at one month.</p> <p>2 at two months.</p> <p>8 at three months.</p> <p>7 at four months.</p> <p>8 at five months.</p> <p>8 at six months.</p> <p>8 at seven months.</p> <p>1 at eight months.</p> <p>5 at nine months.</p> <p>3 at ten months.</p> <p>2 at eleven months.</p> <p>1 at twelve months.</p> <p>1 at seventeen months.</p> <p>1 at twenty-four months.</p> <p>2 at thirty months.</p> <p>1 at thirty-four months.</p> <p>1 at eleven years.</p>
A total of 63 sequestrectomies, 8 of which were spontaneous.	
Number of operations..	<p>25 cases—only one operation was necessary.</p> <p>14 cases—multiple operations, but about half of these were external drainages.</p>
Deaths .....	<p>1 baby, following a bone-cutting operation on the upper jaw one week after the onset of symptoms.</p>

an "ulcerated tooth" in the acute stage. On the other hand, except among enfeebled old people, death following the conservative plan is extremely rare and except among young children cervical abscess or extensive bone necrosis is uncommon where the tooth and the bone are spared the trauma of instrumentation in the acute stage of the infection.

This may seem difficult to explain but a study of the history of a typical case will at least furnish food for thought.

The "ulcerated tooth" is a culmination of an infection that has been present for an indefinite time, possibly years, without giving more than mild or unidentified symptoms. Often the root canals of the damaged tooth were long ago sealed by the dentist and it is usually difficult to assign any logical cause for the explosion. About the simplest explanation is the assumption that a disturbance of the balance between virulence and resistance has occurred which permits the hitherto imprisoned bacteria successfully to attack the confining barriers. This low resistance may be the reason why the trauma of an extraction may not be well tolerated at this particular time. This type of acute osteomyelitis should hold more than an academic interest for both the physician and the surgeon, either of whom must occasionally help a patient to choose between the man who offers immediate and permanent relief from a jumping toothache by a painless extraction under gas, and the old-fashioned dentist who prescribes quinine, phenacetin, the mustard foot bath, and the fig poultice, and who may attempt to establish drainage by the somewhat painful process of opening a root canal. The former may be the more brilliant procedure, but we can still give the conservative man our moral support with the assurance that his plan is the safer. Besides, the physician can always add sufficient morphine at least to ease the time of travail or possibly he may shorten it by an incision and a stripping up of the periosteum at the likely site of perforation.

At a later period when the balance between virulence and resistance has been reestablished in the patient's favor, extraction of the tooth is not only safe but is better surgery than the most effective dental restoration.

This taboo against immediate extraction applies only to the period of acute local symptoms evidenced chiefly by swelling of the neighboring soft tissues and by the pain and tenderness that are characteristic of early osteomyelitis, not to the subacute stage in which discomfort, low fever, adenitis, malaise, rheumatism or joint infections, etc., may evidence chronic infection. If, however, an extraction under these latter conditions is followed by a severe local flare-up, then there may be good reason to go slow on repeating the insult.

Once an osteomyelitis of the jaw has occurred, whether it has developed spontaneously, has followed some dental trauma, or has followed some infectious disease, the general plan of treatment may be outlined as follows:

First, the establishment of drainage of the focus with the least possible operative trauma. This includes external incisions through the soft parts or internal incision to and through any overlying periosteum in the case of an "ulcerated tooth" where an attempt is being made at drainage alongside of the tooth. The periosteum may even be stripped gently back in this instance.

Second, waiting until the virulence of the infection has subsided, the dead bone has completely separated, and sufficient new bone has formed to maintain continuity of the jaw before attempting any radical removal of bone.

This period of separation of bone averages about 3 months and on this surgical service no attempts are made at dislodgment of sequestra before this time unless it is evident that they are free and can easily be removed. Secondary incisions through the soft parts for drainage may be necessary. Also, during this period, it is very important to try to maintain the patient's general health in every possible way, that he may have the best chance for resisting the chronic infection.

Third, at the proper time, all fragments of dead bone must be removed, with limited damage to the living bone surrounding them. This procedure may take on a radical aspect because of the frequent difficulty of the approach to the dead fragment through the soft tissues, and at times through the involucrum.

In the literature, most writers favor the conservative plan.<sup>1,12</sup> Those favoring a radical bone-cutting operation in the acute stage are few in number and none of them present favorable arguments or case reports.<sup>13, 14</sup>

Some cases show very extensive involvement of the bone. But, so far, we have not satisfactorily explained the reason for total necrosis in some instances, while in other instances the degree of involvement goes slowly down the scale to those presenting only areas of slow absorption of bone in which no sequestra result. The shutting off of the blood supply by thrombosis of the inferior dental artery has, of course, been considered in the cases of large or total block necrosis, but this one element alone does not seem sufficient if the surrounding periosteal vessels are functioning. Bacteriological studies have not shown any specific etiology, but very accurate observations are not often made because the majority of patients present themselves with draining sinuses harboring mixed infections. Quantitative estimates of the different organisms in some of the mixed infections have been made but have been of no practical value as far as determining the etiology is concerned. (Two of the three cases reported here had syphilis.)

#### SUMMARY

Osteomyelitis of the jaws is frequently associated with the extraction of or other dental trauma to teeth during the acute stage of an infection. It may also occur spontaneously, (1) most frequently around an area of neglected dental caries or apical abscess formation, (2) less frequently associated with upper respiratory or general diseases, and (3) in association with osteomyelitis elsewhere in the body.

It occurs far oftener in the lower than in the upper jaw (perhaps 8 to 1) in those cases

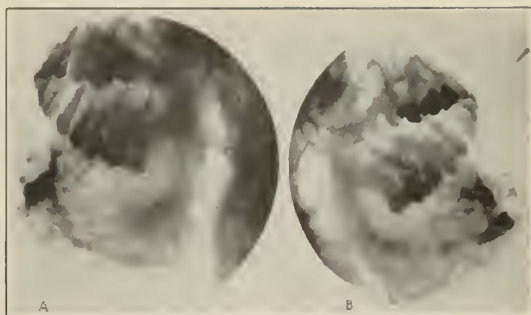


Fig. 1. X-ray of mandible from either side, showing extreme destructive process of this bone.

associated with extraction, due to the poor drainage afforded a lower tooth socket and the excellent drainage from an upper.

Prevention or early care of dental caries, and avoidance of dental trauma or extraction during the acute phase of an infection, will do much toward eliminating osteomyelitis of the jaw.

The treatment of osteomyelitis should be conservative as far as operative attacks on the bone itself are concerned.

#### REPORT OF CASES

Case 1. Woman, aged 52 years, developed a pain in her left lower jaw around a crowned tooth. The tooth was removed and her jaw became so sore that she had to go to a hospital 2 weeks later where incisions were made. The wounds drained for 3 months and some bone fragments came away.

On entry to this service, examination showed several draining external sinuses, much swelling; all teeth were out except one imbedded in jaw. Wassermann negative.

At the end of the fourth month, operation was advised. An attempt was to be made to get the dead bone away from the inside of the mouth, and, if this failed, to remove it through external incisions. The patient so far has refused operation and is still carrying the infection. (Fig. 1 A and B)

Case 2. Colored man, aged 45 years, on September 11, 1929, had the right lower 3d molar pulled. It had been sore for 2 weeks. No pus was present at the time. On September 12, 1929, the left jaw began to swell. On September 17, 1929, the whole face was swollen and the right side drained spontaneously externally, and the left side was incised. The areas continued to drain and there was pain, swelling and dysphagia until November 5, 1929, when he entered this service.

Examination showed marked swelling, draining sinuses, loss of continuity in several places, some pain and dysphagia. The patient was very sick. RBC, 2,860,000; Hg. 60; WBC, 9,050; temperature 38°; Wassermann positive. X-ray showed almost complete necrosis. (Fig. 2 A and B)

Operation November 6, 1929. Wide open inferior drainage established on both sides; several pieces of bone and 6 teeth came down through the neck incisions. There was no direct attack made on the bone, and care was taken not to injure any good surrounding periosteum.

On December 6, 1929, better drainage was established. On December 14, 1929, the drainage was blocked again and some dysphagia developed.





Fig. 2. A and B, condition of mandible at first examination. C and D, condition approximately one month later. E and F, condition 60 days after first examination.

On December 16, 1929, sequestrectomies were done on several fragments through wide open incisions (Fig. 2. C and D). Still no direct attack was made on the bone or periosteum, in the hope that fair continuity of the gross outline of the jaw at least might be preserved and the periosteum given the best chance for regeneration.

Fig. 2, E and F, taken January 16, 1930, show regeneration of bone on both sides and some sequestra that are ready to be removed.

Case 3. White man, aged 33 years. In May, 1929, he had toothache for 2 days and had the tooth pulled. There was almost immediate pain and infection and more teeth were pulled. Seven were pulled at one time and the sockets were closed with sutures. Sixteen teeth were pulled during the month of May. Pain and swelling had increased and, on first admission, May 30, 1929, the mouth could be opened but slightly. Pus drained profusely inside the mouth on May 31, 1929, and there was relief.

The patient was discharged to the outpatient department, but went to a private physician instead, and was treated for syphilis and with hot applications locally. (Wassermann positive.) He was never able to go back to work, the jaws were locked, and swelling and pain increased so much that on September 30, 1929, he took three dozen acetylsalicylic acid tablets.

Patient was readmitted October 1, 1929, with huge swelling of right side extending from just above the clavicle up to the parietal suture apparently



Fig. 3. A and B, condition of mandible at time of admission to hospital. C and D, three months later; apparently some recession in destructive process.

above the temporal muscle. There were fluctuant areas on the opposite side. Drainage occurred spontaneously shortly after admission with relief of pain.

On October 2, 1929, wide open drainage of the soft parts was established on both sides of the neck. (A paralysis of the motor nerve to the lower eyelid appeared after this.) X-ray (Fig. 3, A and B) showed massive involvement of the jaw on both sides but of a sclerosing type without sequestrum formation so that even if desired, no path for attack on the bone presented itself.

The patient was discharged to the outpatient department for dressings and antisyphilitic treatment.

There have been several more drainages but no attacks on the bone. The joints are probably involved but still permit of slight movement. If they become ankylosed, excisions of both condyles will be necessary.

The X-ray (Fig. 3, C and D) shows some improvement of the bone but, before there is healing, there will probably be the necessity of extensive removal of numerous small fragments of bone.

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DISLOCATION OF THE CERVICAL  
SPINE

REPORT OF SIX ADDITIONAL CASES

THEODORE P. BROOKES, M.D.

In October, 1929, ten recent cases of dislocation of the neck, with and without fracture were reported.<sup>1</sup> During the next two months six additional cases were seen and entirely or partly reduced. The reluctance of many attending surgeons to attempt correction in such cases leads us to plead again for intelligent and immediate manipulation of dislocations and fractures of this eminently important portion of the human body. Increasing interest in the particular injury is evidenced in the literature by many recent articles which recount from one to thirty cases seen by individual observers. Our own service of sixteen patients, fifteen of whom were treated in a period of fourteen months, seems to indicate an increase in the occurrence of a disability that was formerly rated as certain death.

If a person survives trauma severe enough to dislocate the neck, there is reason to believe that he can tolerate corrective manipulation without undue risk. Any one who has seen the spinal cord exposed during laminectomy knows that there is a considerable space between the cord and the walls of the spinal canal. The greatest damage to the cord in dislocation of the vertebrae is done at the moment of injury. At that moment the lumen of the canal is narrowest. With release of the force causing the injury there is a partial or complete restoration of the normal diameters of the canal.<sup>2</sup> Edema which follows the injury to the cord may, however, fill the surrounding space in the canal and if the dislocation is allowed to continue, the spinal space will be greatly diminished, the edematous cord thickened, pressure will result and ischemia of the cord with permanent destruction will ensue.

On the other hand, if the natural diameters of the canal are restored by correction of the displacement, thus allowing maximum space about the cord, there is an optimum chance for the edema to subside before permanent destruction of the cord occurs. Davis and Voris<sup>2</sup> report autopsy examination of the cord of a patient dying seventeen days after injury. Edema had disappeared, no pressure existed on nerve fibers but the cord had been irreparably damaged by a dislocation that reduced itself after the causative force had been released. This seems to indicate that edema will subside promptly if the displacement is relieved, and that unless the cord has been grave-

ly damaged at the moment of the accident, there is a good prospect for recovery.

Although the writer has not been able to report perfect reduction in every case, the patients have been made definitely more comfortable, symptoms of pressure on cervical nerves have been relieved and collapse of injured vertebrae averted.

Longworthy<sup>3</sup> reported thirty cases of simple dislocation without accompanying fracture. Our own experience leads us to believe that fracture complicates displacement more frequently than we are able to demonstrate by X-ray; sometimes there may be only a chip from the face of the underlying vertebra (Case 13). This may make difficult the retention of the vertebra in place after replacement. Fracture may be extensive and involve the laminae, thus separating the entire body from the various processes of the vertebrae (Case 14) or there may be only a chip from a lateral or spinous process.

If the dislocation is uncomplicated, Walton's<sup>4</sup> retrolateral flexion with rotation will usually accomplish reduction and the after-care will not be nearly as tedious as is the case when there is injury to bone structures. The risk of further collapse or disintegration from pressure persists for months after fracture of any vertebra and suitable support must be provided. When extensive fracture is evident, Taylor's<sup>5</sup> immediate extension and manual manipulation offer full control of traction and maneuver of the head and neck with minimum risk of further damage from misplaced spicules of bone.

All the cases in this report resulted from falls on the head. Three were thrown from automobiles and landed on their heads. Two fell to the ground from roofs. One was knocked to the payment by a thug and landed on his chin. It is interesting to observe that only three of the writer's entire series of sixteen cases were due to the automobile itself. It is also worthy of note that the victims were passengers in the cars and not pedestrians in front of them.

## REPORT OF CASES

Case 11. J. A., a white man of 74, was thrown from an automobile on his head, September 20, 1929. He rode home on a street car and did not enter the City Hospital until five days later. He was unable to move his head, which was flexed with the chin rotated to the right. X-ray examination showed an anterior dislocation of the first cervical vertebra on the second, with narrowing of the joint space between first and second on the left side of the odontoid process. Two attempts to reduce the dislocation were made by the Walton method. Three weeks after the injury the head was straight and the report from an X-ray examination indicated that a



dislocation was not as marked. The rotation had been corrected; the condition and age of the patient did not warrant further manipulation. He was put in a plaster cuirass and allowed to leave his bed. He improved satisfactorily for a month and then suddenly declined and died on November 17. His death occurred eight weeks following the injury and was reported at the coronor's autopsy as due to myocarditis and papilloma of bladder.

Case 12. M.M., a roofer of 43, was brought to City Hospital on October 16, 1929, immediately after a fall from a roof. He was unconscious and all the reflexes of his trunk and lower limbs were absent. He had a short, thick neck, with high shoulders. The roentgenologist reported deformity of the sixth cervical vertebra, due to injury. The same day Taylor traction and manipulation without anesthesia were performed. Crepitus was palpable during the manipulation as the head was hyperextended and the spine below the level of the injury was lifted into line. A plaster cuirass was applied. The patient regained consciousness. At the suggestion of Dr. A. B. Jones, repeated lumbar punctures were made and small amounts of spinal fluid were removed. Huge bedsores and an abscess of the buttock developed. Four weeks after the injury the patient had pain in the legs and questionable movements in the lower limbs. He died on December 12. A coronor's autopsy reported the death due to chronic myocarditis with internal injuries as contributory cause. X-ray taken five days following reduction still showed a deformity of the 6th cervical vertebra but indicated improvement of the position.

Case 13. N. H., a white man of 35, was hurt in an automobile wreck on October 28. He was seen the same day at the Lutheran Hospital with Dr. Frank Demko. His neck was rigid, his head tilted a trifle to the left and his chin rotated toward the right shoulder. The cervical curve was increased. After Walton and Taylor maneuvers the position seemed satisfactory, but a shift in posture caused redislocation, audible to those in the room, while the patient felt a sharp pain radiating from the occiput to the left side of the neck. Under ether anesthesia, Walton technic was again used. The bones were heard and felt to rotate. X-ray the next day showed that the rotation was not corrected, but that the tilting of the first cervical still persisted. Reexamination of the films taken before reduction explained this position in that they showed a "chip fracture" of the anterior face of the body of the second cervical, permitting the body of the first to flex over the margin of the second. It was planned to reduce this fracture again and to attempt to hold it in hyperextension, or, if necessary, to secure it by some form of open operation but the case was taken out of our hands. We are told that he still has deformity of his neck but is otherwise doing well.

Case 14. G. C., a white man of 27, was catapulted when the automobile in which he was riding jumped a ditch. The accident occurred on November 10, 1929, and on the same day he was seen at the Lutheran Hospital with Drs. H. A. and T. H. Hanser. He had been conscious and rational since the accident. He had climbed a fence and secured help for his companions who appeared more seriously hurt than he. His reflexes were normal. X-ray showed a fracture through the laminae of the second cervical vertebra with a forward displacement of the body of the second for a distance of one centimeter. This carried with it the first cervical vertebra and the skull. He had also an oblique fracture of the middle third of the left humerus and a fracture of the tuber ischii. The latter was in good position. Without anesthetic, Taylor traction and



Fig. 1. Case 14. Fracture through laminae of 2d cervical with complete separation and anterior displacement of body of 2d carrying with it the 1st also. Note abolition of normal curvature of neck.

manipulation secured correction of two-thirds of the displacement, a result which was all that could be expected in such a jagged fracture. A plaster cuirass was applied; on January 16 a celluloid col-



Fig. 2. Same case as Fig. 1. Taken immediately after reduction. Separation less than one-third of original distance. Normal obliquity of spinous process of first cervical.



Fig. 3. Same case as Figs. 1 and 2. Four weeks after injury. Bony union is taking place. Anterior margin of 2d vertebra overlaps the rounded edge of the 3d, despite maximum correction. This neck must be supported and carefully watched for at least a year.

lar was applied. Physiotherapy was started on January 24. His fractured arm gave far more trouble than his neck.

Case 15. G. G., a white man of 48, while walking on the street was struck on the back of the head or neck with a blunt instrument. He was knocked to pavement and struck the left side of his jaw, with his chin turned to right. He entered the City Hospital three days later, on November 27. His head was flexed laterally to the right and his chin was rotated to the right. The occipital depression had disappeared. His neck was rigid. No neurological symptoms were present. X-ray examination disclosed a deformity of the upper cervical vertebrae with anterior dislocation of the first cervical on the second. There was also a disproportion in the joint space between the second and the third cervical vertebrae, probably due to injury. On November 28, without anesthesia, the Walton maneuver proved unsuccessful. Taylor traction with manual pressure over the spinous process of the second cervical resulted in audible snap, relief to the patient, and correction of deformity. A plaster cuirass was applied. X-ray on November 30 showed that the anterior dislocation persisted but that the rotation was corrected. The patient looked and felt relieved. On January 27 a new plaster collar was applied. No deformity was visible.

Case 16. M. F., a white man of 42, entered the City Hospital, December 7, 1929. In order not to disturb his wife he attempted to enter his room early in the morning via the porch roof and fell to the ground. On entry he was semiconscious and his breath was strongly alcoholic. He complained of pain in the neck and shoulders and paresthesia of the left arm and forearm. The grip in his left hand was impaired. X-ray examination disclosed deformity of the cervical vertebrae with anterior displacement of the fifth on the sixth. The deformity was rather prominent, with possible impingement on



Fig. 4. Case 16. Redislocation of 5th cervical anteriorly on 6th. X-ray taken eight weeks following original injury and replacement. Note overlapping of body of the 5th and also overriding of lateral process.

the cord. On December 8 Taylor traction and manipulation were performed without anesthetic. There was a definite snap as the lower spine was lifted into line. A plaster cuirass was applied. This man gave considerable trouble. He wriggled down into his cast and had to have a new one within a week. X-rays verified the reduction. A plaster collar was applied on January 26. He managed to tuck his chin down into his cast and soon complained of the same old paresthesia in the left arm. X-ray showed that he had redislocated the fifth cervical. On February 5, under ether anesthesia at the patient's request, Taylor method reduced the displacement with audible and palpable click. This was verified by X-ray. He was again put in a plaster



Fig. 5. Same case as Fig. 4. Taken immediately after reduction.



cuirass. In more than six weeks, therefore, bone reaction about the margins of the vertebrae had been insufficient and ligamentous repair inadequate to support the neck in the corrected position.

#### CONCLUSIONS

1. Dislocations of the neck with or without fracture can and should be reduced. An anesthetic is not always necessary.

2. Following reduction, adequate support must be provided to relieve the injured vertebrae. After-care must be vigilant and continue for a long period of time, averaging at least six months.

3. An increasing number of injuries involving the cervical spine make their intelligent handling an important surgical, legal and economic problem.

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#### THE DRUG TREATMENT OF PREMATURE SYSTOLE

Dr. James J. Walsh, of New York City, tells in an interesting manner the story of the drugs used during some forty years of treatment of missed pulse beat. He states that a good many people with missed heart beat have lived for over fifty years after this has been discovered and it is probable that they had had the affection all their lives and were not hampered in any way, unless the patient got his heart on his mind and was afraid of what might happen to him. The one symptom which deserves treatment is the consciousness of the heart activity and its regular irregularity. Mental therapy plays an important part. Doctor Walsh knew a number of doctors who have been cured of what they were reasonably sure was angina pectoris by all sorts of curious remedies, such as Christian Science, adjustment of the spine and of the pelvis. He thinks that nux vomica and all heart stimulants do harm rather than good. Digitalis made the consciousness of the irregular heart action worse and never did any good. Strophantus proved to be about as unfavorable and it required much more of it. The one drug that after forty years has proved helpful is quinidine. Before the employment of quinidine the only drug that seemed to do any good was the bromides. Potassium bromide was oftener employed but proved rather depressing. There was no difference between potassium bromide and the ordinary triple bromides, though there was a distinct difference in taking sodium bromide, which seemed to have the same sedative effect without the depression. One of the earliest prescriptions given to a physician-patient some thirty-five years ago when he was a medical student, came from Prof. William Pepper which called for cinchona and bromide in very moderate doses, to be taken over a prolonged period. This prescription which looked to the medical student as little better than a placebo given him with the idea of having him take some rather bitter medicine so as to feel that something was being done for him, so far from being anything like that, was actually

a carrier of two very interesting therapeutic principles. Probably one of the most favorable influences exerted on the heart when there is considerable depression because of the tendency to missed beats is that produced by laughter. This may be due to the fact that the up-and-down movement of the diaphragm in laughter causes direct massage of the heart and therefore stimulates its activity. One very interesting relation of extrasystole is that to low blood-pressure, people with this condition nearly always having a blood-pressure under 130 and sometimes 120. On damp days when the barometer is low, people with low blood-pressure lack energy, and quinidine seems to be a valuable remedy for this as well as the missed heart beat. It is curiously interesting to realize that after years of study of various drugs for high blood-pressure, the only one that is commonly praised as likely to be efficient is the old-fashioned bromides. They are made much more efficient by the withdrawal of any extra common salt that may be used and it has been found that sodium bromide gave better satisfaction than any of the other salts.—*International Clinics*, December, 1927.

#### DETECTION AND INCIDENCE OF HUMAN INTESTINAL PROTOZOA BY SIGMOIDOSCOPE

Moses Paulson and Justin M. Andrews, Baltimore (*Journal A. M. A.*, June 11, 1927), compare the incidence of protozoan parasites of the human intestine from specimens of feces obtained by the use of the sigmoidoscope with the usual defecated specimens submitted for examination. The types of persons examined were extremely varied. Only eight of the 253 cases presented organic disturbances referable to the large intestine; the remainder proved to be purely functional states. A third of those examined did not present bowel symptomatology. The specimens were examined microscopically and culturally (for flagellates), and yielded, in the group that had not partaken of barium sulphate for at least six days prior to the sigmoidoscopic examination, an incidence of all organisms of 13.7 per cent. in defecated specimens, as compared with 46.3 per cent. from sigmoid contents. In the group in which barium sulphate had been ingested within six days of examination, a total incidence of 8.7 per cent. from defecated specimens, as compared with 20.9 per cent. from sigmoidoscopic specimens, was determined. The combined barium and nonbarium groups revealed a total incidence of 10.5 per cent. from defecated specimens, as compared with 31.9 per cent. from the sigmoid. Comparing the occurrence of protozoa found in feces obtained sigmoidoscopically and by defecation, it was found that the incidence by the former method was regularly (with the exception of *Trichomonas*) from two and one half to three and one half times as high by the latter method. There does not appear to be uniform association of particular organisms with particular symptoms. The incidence of protozoa was approximately twice as high in those cases in which barium sulphate had not been administered, as compared with those in which it had been administered within six days of the examination. The serum-saline-citrate method of flagellate culture was found to be a useful supplement to smear examination for *Trichomonas* and *Chilomastix*. On the basis of these observations, the authors urge the use of the sigmoidoscope in obtaining fecal specimens for parasitologic examination. The use of this instrument for this purpose is fully justifiable in view of the proved inadequacy of single parasitologic examinations from defecated feces.

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APRIL, 1930

## EDITORIALS

### SANE MEDICAL TESTIMONY ON INSANITY

A new approach to the solution of a grave problem was illustrated for the first time in Missouri by the action of the court, the prosecuting attorney, and the attorney for the defense in the Schumm murder case at St. Louis, March 17. By unanimous agreement these officers selected three physicians trained in the study of mental disease to examine Schumm and report their conclusion on his mental condition to the court. All agreed to accept the conclusion of the commission. The physicians they selected were, Dr. M. A. Bliss, Dr. Sidney I. Schwab, and Dr. Francis M. Barnes, Jr.

Sufficient time was allowed for the commission to make a thorough study of the defendant under hospital conditions. Interviews with teachers, schoolmates, companions, and relatives were held and a certified family history record was obtained. Calmly and with no emotional stress the commission arrived at the conclusion that Schumm was insane.

The findings of the commission were accepted by all parties to the trial, the jury was selected in a few moments instead of this process consuming many days as is usual under the conventional procedure, and the verdict was rendered within half an hour after the jury had received its instructions from the court. The verdict declared that Schumm was insane and ordered him to be confined for the remainder of his life. Thus was concluded in an orderly, dispassionate and scientific manner the trial of an unfortunate victim of paranoia who shot and killed his father and seriously injured his mother without provocation or forewarning.

The case held all the elements tending to provoke a bitter "battle of experts" if the trial had been conducted in the customary manner. That we have been spared the sensational and utterly fruitless spectacle so characteristic of

the conventional method in similar cases in the past is due to the enlightened attitude of the court and the attorneys, Judge Harry A. Hamilton, of the criminal division of the circuit court; Mr. Tom Hemmings, assistant circuit attorney; and Mr. Guy A. Thompson, attorney for the defense. To these gentlemen must be given the credit for having initiated a reform in the conduct of murder trials where insanity is a plea that we hope will soon cease to be a discretionary power but become an obligatory procedure through legislative enactment. Mr. Thompson has long advocated the adoption of a statute creating a commission in the state eleemosynary board to do exactly what these St. Louis physicians did in the Schumm case. Instead, however, of permitting courts and attorneys to exercise their discretion in the matter, the law should make it obligatory upon them to submit the defendant to the commission immediately upon the plea of insanity being entered.

Although in this particular case, the acts were committed under such circumstances as to make mental disorder presumptive a similar procedure as to full determination could well be followed in all murder cases where insanity is an issue. When such examinations are made by wholly disinterested examiners, as they are under the Briggs law in Massachusetts, the scandal of expert medical testimony practically disappears. Emotional display has no proper place in the weighing of findings in these instances. In Massachusetts it is a routine. Examinations by the personnel of the state department for mental disease is conducted in an orderly way uninfluenced by the press, the legal profession or the people.

For many years the Missouri State Medical Association has endeavored to find a solution of this intricate problem,—intricate when left to individual or organizational effort but simple when controlled by statutory provision. No rule of conduct nor ethical principle can be formulated to deter physicians from offering what is apparently biased testimony in such cases, nor would it be wise to attempt doing so. Without any such regulation in our Association, many physicians have steadfastly declined to qualify as experts in all such cases and those who make a practice of finding the mental condition wanted by the side which summoned them soon discover that they have lost the confidence of their fellows and built up a malodorous reputation in the legal profession.

We may be witnessing the dawn of a new day in Missouri which will bring a more rational approach to the problem "sane or insane" in the case of those who are indicted for murder.



## INSULIN BY MOUTH

The treatment of diabetes by insulin subcutaneously administered has stood the test of time and, so far as efficacy is concerned, leaves little to be desired. However, the pain, the inconvenience, not to mention the danger of one, two or three hypodermic injections a day continued for days, months and years are an undeniable drawback. We therefore hail with delight the proposed introduction of any treatment of diabetes by remedies administered by mouth. So far, however, our fondest hopes in this direction were always doomed to bitter disappointment. Synthaline, sponsored by the historical Breslau clinic, and myrtillin by our own F. M. Allen, have not proved of practical value in general practice.

Insulin itself given by mouth has thus far shown no definite results. Perhaps it has not been sufficiently tested, because we have been deterred by the dictum of physiologists, that from its very nature insulin when introduced into the gastro-intestinal tract is digested and rendered inert. But it has frequently happened that undaunted effort has accomplished what but a short time before had been "proved" to be impossible. When Stephenson in 1815 showed a steam locomotive pulling on a smooth railroad track a string of cars heavier than the engine itself, he demonstrated the possibility of what engineers were convinced could not be done except on a cog-wheel track. In 1903, when the Wright brothers first flew in a heavier-than-air machine, the ink had scarcely dried on a thesis by an eminent professor of physics apparently proving that man can never fly except in balloons.

Disregarding all arguments to the contrary, Dr. R. Stephan,<sup>1</sup> of Frankfort a. M., boldly attacked the problem of administering insulin by mouth. He first used insulin combined with butter, and later with a bile acid (Desoxycholsaure). This compound he gave to experimental animals, to normals, and to diabetics. He found that it would lower the blood sugar much as insulin does when hypodermically given. The compound is sterilizable by heat and never causes disagreeable symptoms or hypoglycemia. For each patient, there is an optimum dose. When this dose is exceeded there is no increased effect. The remedy is absorbed only by a gastric mucous membrane. An acid-free and a ferment-free stomach is a necessity. To secure this, you must give 2 G. magnesium sulphate in very

little water 20 minutes before administering insulin. The patient must remain for some time in an upright position. Dr. Stephan has successfully treated 12 tested out diabetics in this manner. The patients were on a staple diet and were first made sugar-free by hypodermic insulin treatment. All treatment was then stopped for 14 days, during which time urine sugar and high blood sugar had promptly recurred. The same amount of insulin that had been found necessary in 24 hours by the hypodermic route, was then given in one dose on an empty stomach early in the morning mixed with the bile acid. Urine and blood soon became normal.

Although the insulin was given early in the morning, meals taken during the day failed to raise the blood sugar above the normal postprandial level. Insulin perorally administered, therefore seems to show its greatest power after the physiological stimulation of a meal. After daily doses of the insulin mixture had kept the patient aglycosuric for 14 days, the treatment was intermitted for 20 days. During these 20 days the blood sugar never reached the height at which it had been before the peroral insulin treatment. Not only that, but on resuming peroral treatment later on, less insulin was needed to achieve the desired results again. In other words, the patient's sugar tolerance had been raised. Clinical symptoms improve *pari passu* with the laboratory findings during the treatment.

The author accounts for the increase of the patient's sugar tolerance resulting from the course of insulin given by mouth, by assuming that the insulin bile-acid compound entering the general circulation through the portal vein acts directly on the cells of the islands of Langerhans as a hormone or perhaps as a vitamin. He is strengthened in this view by the fact that bile-acid insulin irradiated by the violet ray gives even better results than the nonirradiated product.

Until the author gives more detailed information as to the preparation of this insulin bile-acid compound, or tells us where it can be purchased, the medical profession at large is of course unable to test out his apparently wonderful discovery.

THE SEVENTY-THIRD ANNUAL  
MEETING

The Seventy-Third Annual Meeting of our Association which convenes at Hannibal, May 12, 13, 14, 15, 1930, promises to be a highly satisfactory session. The Local Committee on Arrangements is endeavoring to anticipate all the needs of the visitors so as to make their so-

1. München med. Wehnschr. (September 20) 1929.

journ in the "Home of Mark Twain" a pleasurable event.

The Program Committee has been overwhelmed with requests for the presentation of scientific papers and could not find room for all that were offered. With the usual night session on Wednesday, the Committee has made room for forty-eight papers.

The grouping of subjects in symposiums having proved so popular and instructive in previous years the Committee has arranged for symposiums on Contagious Diseases, Chest Diseases in Childhood, Gynecology and Obstetrics, and Abdominal Surgery.

At this writing, the Program Committee has arranged for only one guest, Dr. William Gerry Morgan, Washington, D. C., President-Elect, American Medical Association. The Committee hopes that one or more of the other guests who have been invited will be able to accept.

The delegates are reminded that the House of Delegates will hold its first session on Monday morning, May 12, and remain in session all day. The Council will meet immediately after lunch on Monday during the interval between the sessions of the House of Delegates. All meetings will be held in the Elks' Club.

The Local Committee on Arrangements follows:

#### LOCAL COMMITTEE ON ARRANGEMENTS

Howard B. Goodrich, Chairman; W. F. Francka and Eugene M. Lucke.

Committee on Hotels: W. F. Francka, Chairman; John J. Farrell and A. L. Shanks.

Committee on Registration: C. W. Hamlin, Chairman; H. L. Banks and I. E. Hill.

Committee on Exhibits: E. R. Motley, Chairman; W. P. Birney and W. H. Hays.

Committee on Golf: Eugene M. Lucke, Chairman; J. W. Hardesty and E. T. Hornback.

Committee on Auto Transportation: H. O. Daniel, Chairman; Harry B. Norton and P. J. Reichmann.

Committee on Reception: Charles E. Salyer, Chairman; J. N. Baskett, James C. Chilton, J. W. Hardesty and T. A. Roselle.

Committee on Entertainment: T. A. Roselle, Chairman; F. E. Sultzman and U. S. Smith.

#### HOTELS AND RATES AT HANNIBAL

Members are urged to make hotel reservations in advance of the date of the Annual Meeting so they can secure their rooms as soon as they arrive at Hannibal. Reservations should be made direct with the hotels. The Committee on Hotels, however, will be ready to assist any member who is unable to make satisfactory reservations direct. The chairman

of the Hotel Committee is Dr. Howard B. Goodrich. The names of the hotels and rates follow:

Hotels	Single Without Bath	Single With Bath	Double Without Bath	Double With Bath
Mark Twain (Headquarters)			\$3.00	\$5.00
Conklin.....	1.50	4.00	2.50	5.00
Marion.....	1.25 and 1.50	2.00	2.50	3.50
Windsor....	1.25	1.50 and 2.00	2.00	2.50 and 3.00

#### DR. S. E. BALL'S LICENSE REVOCATION SUSTAINED BY SUPREME COURT

The Missouri Supreme Court, in an opinion handed down March 4, sustained the action of the State Board of Health in revoking the license of Dr. S. E. Ball, Excelsior Springs, for unprofessional conduct in soliciting patients for the Ball Health Institute. This is the final result of a bitter fight made by Ball against the original action of the board in November, 1926. The ruling of the board was reversed by the Caldwell County circuit court through a change of venue from Clay County upon an appeal by Ball for a review of the board's action.

The Supreme Court found that the evidence submitted at the hearing before the State Board of Health conclusively proved that Ball employed paid agents and runners to meet all trains entering Excelsior Springs to solicit patients for his institution. Ball, it is said, contended that the agents were not employed by him personally but by a concern called the Health Culture Company which it is asserted is controlled by Ball.

Judge William F. Frank who wrote the opinion overruled numerous claims of the defense of errors in procedure.

#### WARNING

The American Medical Association is warning physicians that Lee F. Whittaker is collecting Fellowship dues and taking subscriptions to *The Journal of the American Medical Association* without the authority of the Association. Recently a physician in Kansas City, Missouri, sent a cancelled check endorsed by Whittaker as a representative of the Association. About one hundred physicians in various parts of the United States have been victimized. Whittaker was last heard of in Wichita, Kans., his address being 344 S. Volutia. He is described as 21 years of age, slender, about



5 feet, 6 inches in height, with fair complexion, and using crutches on account of a crippled knee. The American Medical Association has authorized solicitors in the field but these men carry identification cards signed by Dr. Olin West, secretary.

## NEWS NOTES

Dr. Willard Bartlett, St. Louis, was the guest of the Medical Association of the Isthmian Canal Zone at a special meeting held at the Century Club, Panama, February 18. Dr. Bartlett spoke on "Recent Advances in Surgical Anesthesia."

Dr. George W. Becker, St. Louis, was appointed chief surgeon of the police department by the St. Louis Board of Police Commissioners, February 14. Dr. Becker succeeds Dr. Louis T. Pim who was asked to remain as one of the three assistant surgeons. Dr. Becker has been an assistant police physician for eight years.

The next meeting of the Trudeau Club of St. Louis will be held Thursday, April 3, at 8:15 p. m., in the St. Louis Medical Society building. The following scientific program has been arranged: "Tuberculosis and Pregnancy," by Dr. George Gellhorn. "Urogenital Tuberculosis," by Dr. H. H. Kramolowsky. Members of the medical profession are invited to attend.

Dr. Harvey J. Howard, St. Louis, professor of ophthalmology at Washington University School of Medicine, was the guest speaker at the University of Michigan Alumni Association meeting in St. Louis, February 25. Dr. Howard told incidents of his twelve-year residence in China during which period he introduced the science of ophthalmology in China. Among his experiences was that of fitting Henry Pu, the boy emperor, with glasses. Upon examination, Dr. Howard found the emperor's vision so poor that he was almost blind but decided that glasses would correct the defect. When the test frames were adjusted and lenses were fitted that improved the emperor's vision to his satisfaction, he wanted to keep the test frames and lenses. Dr. Howard said he had to be quite diplomatic to get back his test outfit. Another experience which Dr. Howard mentioned briefly was his capture by bandits during the revolutionary upheavals. He was held captive for ten weeks and finally released on the intervention of the United States government.

The annual entertainment for the benefit of St. Joseph Institute for the Deaf, St. Louis, was given by the pupils, March 9, at the St. Louis University Auditorium. A colorful pageant depicting the dances of various nations was part of the program.

Drs. Robert Crossen and C. E. Gilliland, St. Louis, were guests at a dinner of the Terre Haute Academy of Medicine, Terre Haute, Indiana, March 7. Following the dinner, Dr. Crossen gave an address on "The Toxemias of Pregnancy With Special Reference to the Vomiting of Pregnancy and Eclampsia." Dr. Gilliland spoke on "The Diagnosis of Gallbladder Lesions With Particular Reference to the Use of Sodium Tetraiodophenolphthalein (Iodeikon)."

Three hundred and six lepers are now under treatment at the National Leprosarium, Carville, Louisiana. Up until 1917 no provision had been made by the federal government for lepers. On February 3, 1917, Congress enacted legislation and provided funds for establishing a national home for lepers and appointed a committee to select a site. This committee, of which Dr. Martin F. Engman, St. Louis, was a member, met with great opposition in obtaining a site because no state cared to cede territory to the government for use as a leper settlement. The problem was finally solved by purchasing the estate occupied by the Louisiana Leper Home from the State of Louisiana and this was developed by the United States Public Health Service into the present national institution.

The correct method of *not* handling children was the theme of a play presented March 3, 4, in Kansas City, by several members of the Jackson County Medical Society and their wives. Reports say that all dangers and pitfalls of old-fashioned ideas were disclosed and that problems of modern child psychology were adequately handled. Those taking part were Mrs. Harry Gilkey, Mrs. R. Lee Hoffmann, Mrs. Russell L. Haden, Mrs. Fred Irwig, Mary Virginia Teall, Drs. Theodore H. Aschman, Glenn C. Carbaugh, Logan Clendenning, Arthur Clasen, O. Jason Dixon, Frank P. Laurenzana, Cliff R. Cline, Hermon Major, Caleb A. Ritter, Charles C. Dennie, Edward T. Gibson, Harry C. Lapp, T. S. Blakesley, Lyle G. Willits, Roy F. Mills, J. Paul Frick, Paul F. Stookey, George H. Hoxie, Willis Keith, Rex L. Diveley, Albert S. Welch, L. Mason Lyons, Philip Saper, Raymond Teall, A. Morris Ginsberg.

Office surgery is discussed in fifty-two articles in the February issue of *The American Journal of Surgery*, published by Paul B. Hoeber. The number comprises 270 text pages, most of it devoted to surgical problems that can be handled in the office.

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Hospital Day will be observed again this year on May 12, celebrating the anniversary of the birthday of Florence Nightingale. Since 1921 the honoring of Miss Nightingale has been combined with acquainting people with the work of hospitals. From the United States the idea of observing Hospital Day has spread to several European and Asiatic countries.

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A course in internal medicine will be offered by Washington University School of Medicine, April 28 to May 24. The course is designed to present in concentrated form certain principles of medical diagnosis and treatment with particular attention to the evaluation of recent tests and methods. The course is postgraduate and given independently of undergraduate instruction. The faculty of the course is made up from the staff of the department of internal medicine and the visiting physicians of Barnes Hospital.

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Protecting children from tuberculosis will be the object of a nation-wide campaign to be conducted in April by the National Tuberculosis Association. The campaign will consist of organized meetings by local tuberculosis associations at which talks will be given, motion pictures shown, and pamphlets distributed, all emphasizing the importance of watching and guarding the child. A pamphlet entitled "The Childhood Type of Tuberculosis" has been prepared by Dr. Henry D. Chadwick, Massachusetts Department of Public Health, and Dr. F. Maurice McPhedran, Phipps Institute, for use in the campaign.

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Dr. Chadwick inaugurated a ten-year program for searching out all children in Massachusetts who have tuberculosis. The program was begun in 1924 and during the first three years an effort was made to examine only children who were 10 per cent or more underweight or were known contacts. It was found that these selective examinations were not adequate and during the last two years 51,000 children have been examined. Much of the material in the brochure is based on findings in these examinations. This manual can be obtained from the National Tuberculosis Association, 370 Seventh Ave., New York City, or from the local city and state associations.

The magnificent new building of the Jefferson Medical College and Curtis Clinic, Philadelphia, was dedicated February 22, 1930. George B. McClellan, professor of economic history, Princeton University, gave the dedicatory address. Portraits of Alba B. Johnson, president of the board of trustees, and of Dr. Ross V. Patterson, dean of the college, were presented by the alumni association of the college.

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The Missouri Social Hygiene Association Board of Directors elected committee chairmen for the ensuing year at a meeting held in St. Louis, February 26. The following were elected: Dr. F. H. Ewerhardt, education; Dr. Richard S. Weiss, medical; Jacob M. Lashly, public relations; Mrs. Ira L. Bretzfelder, protective measures. An executive committee was appointed comprising the following directors: Dr. Ivan Lee Holt, Mrs. Virgil Loeb, Mr. Frank J. Bruno, Dr. Weiss, and Dr. Ewerhardt. Rev. Alphonse M. Schwitalla, dean of the St. Louis University School of Medicine, is president of the association.

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As an affectionate expression of the high esteem and regard which the medical profession and more particularly the ophthalmologists have for Mrs. Anna F. Harris, an untiring worker and official of the Missouri Society for the Blind, the Ophthalmic Section of the St. Louis Medical Society sponsored a testimonial St. Valentine's dinner in her honor, February 14. The dinner was held in the dining room of the St. Louis Medical Society building and was attended by approximately seventy-five persons. Dr. W. H. Luedde, former head of the Missouri Commission for the Blind, acted as toastmaster and introduced Dr. J. F. Hardesty, chairman of the Ophthalmic Section. Other speakers represented many and varied organizations attesting to the far-reaching influences of the Missouri Society for the Blind, and of their valued executive secretary, Mrs. Harris. It was regretfully learned that she will take an indefinite leave of absence in the near future.

The speakers of the evening included Robert Kelsoe, director of the Community Fund; Charles B. Hayes, representative of the American Foundation for the Blind; Dr. Meyer Wiener, member of the Missouri Commission for the Blind; Mrs. M. D. Campbell, executive secretary of the Missouri Commission for the Blind; Dr. C. W. Tooker, president of the St. Louis Ophthalmic Society; Dr. Amand Ravold and Mr. Elmer H. Bartelsmeyer, representatives of the St. Louis Medical Society; Dr. L. T. Post; Col. H. D. McBride, secre-



tary of the Board of Directors, St. Louis Society for the Blind; Dr. Robert Johnston, president of the St. Louis Society for the Blind.

The toastmaster read many telegrams and letters from relatives and friends of Mrs. Harris. Among the senders were Miss Helen Keller, Dr. James Stewart, and Dr. John Green. Music by an orchestra of several blind musicians furnished an enjoyable part of the program.

The United States Civil Service Commission announces open competitive examinations for medical officer, associate medical officer, and assistant medical officer. The examinations are to fill vacancies in the United States Veterans' Bureau, Public Health Service, Indian Service, Indian Field Service, Coast and Geodetic Survey, and Panama Canal Service. Competitors will not be required to report for examination at any place but will be rated on education, training, and experience. Applications must be on file with the United States Civil Service Commission, Washington, D. C., not later than June 30. Application blanks and full information may be obtained from the United States Civil Service Commission or at the Old Customhouse, St. Louis.

Plans for the Citizens' Military Training Camps for 1930, just announced by Major General Johnson Hagood, Commander of the Seventh Corps Area, include training 5,300 candidates from the states of Minnesota, North Dakota, South Dakota, Iowa, Nebraska, Kansas, Arkansas, and Missouri. Camps will be established for thirty days beginning July 5 at Jefferson Barracks, Mo.; August 1 at Fort Snelling, Minn.; Fort Des Moines, Ia.; Fort Crook, Nebr.; Fort Leavenworth, Kans.; and June 16 at Fort Lincoln, N. Dak.

The object of the C. M. T. Camps, General Hagood points out, is to develop the manhood of the nation by bringing together young men of high type from all walks of life, in the same uniform, on a common basis of equality, and under the most favorable conditions of outdoor life; to teach them the privileges, duties, and responsibilities of American citizenship; to inculcate self-discipline and obedience, and to develop these young men physically, mentally, and morally.

All applicants are examined physically and only those who meet the requirements are accepted for one of the training camps. Travel expense, food, uniforms, lodging, athletic equipment, and medical care are furnished without expense to the candidate. No obligation for future military service of any kind is incurred by those who attend these camps.

The following articles have been accepted for New and Nonofficial Remedies.

United States Standard Products Co.

Diphtheria Toxin-Antitoxin Mixture 0.1  
L+ (Non-Sensitizing) Prepared from  
Sheep Serum.

The following articles have been exempted and included with the List of Exempted Medicinal Articles (New and Nonofficial Remedies, 1929, p. 481):

Robert McNeil

Tincture Digitalis Duo-Test McNeil

Black Capsules Digitalis Duo-Test McNeil

The Missouri State Board of Chiropractic Examiners, on March 4, ordered an investigation into an alleged high school diploma mill and chiropractic colleges said to be operating in Missouri. So widespread has been the operation of these, the board reports, that the secretary, Thomas F. Maher, St. Louis, has been instructed to reopen the files of every chiropractor who has been licensed since the chiropractic act was passed in 1927. Approximately 900 persons have been licensed during this time.

One of the circumstances leading up to the investigation was the similarity of engraving on the diploma of a chiropractic college, which until recently operated in Kansas City, and that of purported high school diplomas which accompanied applications for licenses filed by graduates of the college. The high school was investigated and reports show that the school was established in 1919, while one of the diplomas was granted in 1910. Names of the holders of diplomas who are under investigation could not be found on the records of the school.

A Kansas City resident told the board that she had been offered a high school diploma for 50 cents, and that many were being sold.

Maher questioned the credentials of Dr. Cornelius Terhune, Kansas City, whom Governor Caulfield is said to be considering for membership on the board. Dr. Terhune's file in the chiropractic board offices shows that he was graduated from the Universal Academy of Chiropractic Research and that the school is incorporated. Maher told the board that the secretary of state's records do not reveal such a corporation. The diploma states that the school was formerly the Central School of Chiropractic. Former heads of this school have given affidavits that all interests have been transferred to a school in Kansas City, Kans.

The Board of Curators of the University of Missouri, on February 8, appointed Professor Edgar Allen, Ph.D., as dean of the School of Medicine and director of the University Hospitals to succeed Dr. Guy L. Noyes who died February 4. For the last year and a half, Dr. Allen has been assistant dean, and acting dean since November, 1929. He will retain his teaching connection as professor of anatomy.

Dr. Allen received his bachelor degree from Brown University, Providence, R. I., in 1915, his master's degree in 1916 and earned his doctor of philosophy degree from the same university in 1921. He held several teaching positions before his appointment as professor of anatomy at the University of Missouri in 1923, among them associate in anatomy at Washington University School of Medicine. He has contributed a number of articles in the fields of anatomy and the physiology of reproduction, and in collaboration with Dr. J. P. Pratt, of the Henry Ford Hospital, Detroit, and Dr. Q. U. Newell, of Washington University School of Medicine, St. Louis, obtained the first unfertilized human ova to be recovered from the uterine tubes and definitely identified.

Dr. Allen is a member of numerous associations and a member of several special scientific organizations. He is an associate member of the Boone County Medical Society and an Associate Fellow of the American Medical Association.

Approximately 1500 beds will be added to the St. Louis hospital capacity within the near future. The two hospitals nearest completion are the De Paul and the Deaconess, one with a 250-bed capacity, the other 200.

The Deaconess Hospital is a seven-story structure costing \$1,000,000 and containing 200 beds. It will be opened by the Evangelical Deaconess Society this spring. The De Paul Hospital, which is costing \$1,600,000, will be opened this spring by the Sisters of Charity of St. Vincent de Paul. It is eight stories in height and will have a capacity of 250 beds.

Construction is proceeding on the new McMillan Eye, Ear, Nose and Throat Hospital and the Oscar Johnson Institute for Research. The building was made possible by the \$1,000,000 bequest of Mrs. Wm. McMillan, the \$500,000 gift of Mrs. Oscar Johnson and her sons, and a \$1,200,000 grant from the General Education Board. The building at present is eight stories and plans for raising additional funds in order to make the building fourteen floors are under way. Ninety-eight beds will be contained in the eight-story building and

there will be additional beds if fourteen stories are constructed.

The Johnson-Rand memorial wing, which is replacing the surgical wing of Barnes Hospital, will contain 200 beds and will cost approximately \$825,000. The Radiology Institute costing \$450,000 and with an endowment of \$640,000, has been started. The Institute will serve all the hospitals in the Barnes group.

A hospital with 300 beds has been made possible by the gift of \$1,000,000 made by the will of the late Firmin Desloge. A five-story, 100-bed capacity wing is planned by St. Luke's Hospital at a cost of \$1,250,000.

The Eiseman Memorial for convalescent and chronic cases has been planned by the Jewish Hospital. The building will be five stories and will contain 80 beds. The Waldheim Health Clinic, to cost \$275,000 has been planned as a seven-story structure.

The St. Louis County Hospital on North and South Road near Clayton Road, which will cost \$1,000,000, is under construction.

## OBITUARY

HAYNIE ROWELL, M.D.

Dr. Haynie Rowell, Kearney, a graduate of the University of Vermont, 1888, and a post-graduate of Bellevue Medical College, New York, died at his home February 14, aged 70.

Dr. Rowell practiced in Kearney for forty-two years, going there immediately after he was graduated in medicine. He was born in Ray County, November 6, 1860. He was educated in the public schools of Ray County and at the state Normal School, Kirksville. He taught school in Clay and Ray counties and began his medical studies between terms while teaching. He served for more than twenty years on the school board of Kearney.

He served many years on the board of censors of the Clay County Medical Society and was president of the organization at one time. He was a Fellow of the American Medical Association. Dr. Rowell was a cool, deliberate thinker and added much thought and dignity to the profession to which he devoted the greater part of his life. Besides practicing medicine he was in his later years, cashier of the Kearney Trust Company. He was a member of the Masonic and Odd Fellow lodges. He is survived by his widow, one daughter, four brothers and two sisters.

### Resolutions by Clay County Medical Society

WHEREAS, It has pleased an All-Wise Providence to call from our midst one of our oldest, most devoted and beloved members, Dr. Haynie Rowell, therefore be it



*Resolved*, First, that the members of the Clay County Medical Society, with due reverence and solemnity, express our sincere regrets at his loss and extend our sympathy to his bereaved wife and daughter and a host of loving friends who loved him as a true and faithful servant.

Second, that a copy of these resolutions become a part of the minutes of this meeting, and spread upon the records, and a copy sent the bereaved family.

Third, that the Clay County Medical Society has, in the death of our dear brother and co-worker, lost a most able and valuable member of the medical fraternity.

Fourth, that this Society mourns his loss because he was indeed a benefactor, not only to every member of our Society, but to the entire community where he resided, to the service of which his life had for so long been dedicated.

Fifth, that this Society shall ever hold in memory the life and spirit of our noble brother as an example worthy of our emulation.

W. H. GOODSON, M.D.

C. H. SUDDARTH, M.D.

J. J. GAINES, M.D.

Committee.

#### JAMES ROBERT WALLIS, M.D.

Dr. James R. Wallis, Clinton, a graduate of Washington University School of Medicine, 1882, and Bellevue Hospital Medical College, died January 29, 1930, aged 68.

Dr. Wallis was a Fellow of the American Medical Association, and a member of the Henry County Medical Society. He started practice at Marshall, then moved to LaDue where he stayed a short time, then, to Montrose. In 1905 he went to Clinton where he remained until his death.

#### PINKNEY MARTIN MAYFIELD, M.D.

Dr. Pinkney M. Mayfield, Portageville, a graduate of the St. Louis College of Physicians and Surgeons, 1903, died January 3, 1930, aged 53.

Dr. Mayfield was a member of the State Medical Association and of the New Madrid County Medical Society. He was president of the latter in 1923-1924.

#### NATHANIEL MAUSON REED, M.D.

Dr. Nathaniel M. Reed, Clarence, died January 1, 1930, aged 92.

Dr. Reed was a member of the Missouri State Medical Association and of the Shelby County Medical Society for many years and was elected an Honor Member in 1926.

#### HARRY C. LEE, M.D.

Dr. Harry C. Lee, Trinidad, Colorado, a former resident and practitioner of Carrollton, Missouri, a graduate of the University Medical College of Kansas City, Missouri, 1898, died at Trinidad, January 12, 1930, aged 60.

Immediately after his graduation, Dr. Lee served as surgeon of Company A in the Spanish American War. He was appointed to this post by Dr. C. S. Austin, Carrollton, at that time Major-Surgeon, 4th Infantry, National Guards of Missouri. Following his war service, Dr. Lee practiced for a short time in Bosworth, Missouri. He resided in several western cities for short times, then went to Trinidad where he remained until his death.

#### JAMES LEE, M.D.

Dr. James Lee, Charleston, a graduate of the University of Louisville School of Medicine, Louisville, Ky., 1892, died February 5, 1930, aged 60.

Dr. Lee was a member of the Mississippi County Medical Society and a Fellow of the American Medical Association. He served eight months as captain of the Missouri Reserve Corps.

#### JAMES ALBERT REID, M.D.

Dr. James A. Reid, Wentzville, a graduate of Marion-Sims College of Medicine, St. Louis, 1892, died February 11, 1930, aged 50.

Dr. Reid was a member of the St. Charles County Medical Society and a Fellow of the American Medical Association.

#### DEDICATION RECALLS DENTAL HISTORY

Dental education in the United States began in the winter of 1840-1841 when the Baltimore College of Dental Surgery was opened with five students in a small room at Hopkins Place near Baltimore Street, according to an account by Stanton Tiernan in *Hygeia* for January. Two students were graduated in 1841 and in 1851 eighteen received diplomas.

The Baltimore College of Dental Surgery was founded by Horace H. Hayden, who started in life as an architect, but who was so impressed with the skill of a dentist who relieved him of a severe toothache that he took up dentistry at the age of 31. It was not till forty years later, however, that he saw the founding of the school, which from the beginning has exerted a strong influence on the progress of dentistry.

Recently a new building was dedicated for the oldest dental college and a tablet was erected by the Maryland state dental association marking the original site of the college. It has been affiliated with the University of Maryland since 1923.

The museum of the college is especially renowned. It contains for instance sets of artificial teeth representing the successive stages through which their construction has progressed up to the comparative perfection of the present.

## SOCIETY PROCEEDINGS

### COUNTY SOCIETY HONOR ROLL FOR 1930

(UNDER THIS HEAD WE LIST SOCIETIES WHICH  
HAVE PAID DUES FOR ALL THEIR MEMBERS)

#### HONOR ROLL

- Mercer County Medical Society, December 12, 1929.  
Madison County Medical Society, December 16, 1929.  
Benton County Medical Society, January 8, 1930.  
Pulaski County Medical Society, January 11, 1930.  
Webster County Medical Society, January 24, 1930.  
Chariton County Medical Society, January 27, 1930.  
Ralls County Medical Society, March 6, 1930.  
Camden County Medical Society, March 10, 1930.

### MISSOURI STATE MEDICAL ASSOCIATION 73D ANNUAL SESSION Hannibal, May 12, 13, 14, 15, 1930

#### PRELIMINARY PROGRAM

##### Guest

- Morgan, William Gerry, Washington, D. C.,  
President-Elect, American Medical Association.

##### Symposiums

##### Symposium on Contagious Diseases:

- Zahorsky, John, St. Louis: Diagnosis of Diphtheria.

- Rohlfing, E. H., St. Louis: Treatment of Diphtheria.

- Bleyer, Adrien, St. Louis: Prevention of Diphtheria.

- Gilkey, Harry M., Kansas City: Prevention and Treatment of Scarlet Fever.

##### Symposium on Chest Diseases in Childhood:

- Summers, Caldwell B., Kansas City: Acute and Chronic Bronchitis.

- Walthall, D. O., Kansas City: Medical Treatment of Empyema.

- Montgomery, James G., Kansas City: Surgical Treatment of Empyema.

- Hempelmann, T. C., St. Louis: Pulmonary and Tracheobronchial Gland Tuberculosis in Childhood.

##### Symposium on Gynecology and Obstetrics:

- Schwarz, Otto H., St. Louis: Puerperal Infection.  
Hanna, M. A., Kansas City: Gynecological Care of the Puerperium.

- Crossen, H. S., St. Louis: Selective Surgery in Uterine Prolapse.

- Kyger, Fred B., Kansas City: The Sedimentation Test in Relation to Pelvic Disorders.

##### Symposium on Abdominal Surgery:

- Hyndman, C. E., St. Louis: Traumatic Lesions of the Abdomen.

- Owens, M. J., Kansas City: Intestinal Obstruction.  
Fisher, A. O., St. Louis: Some Unusual Abdominal Conditions.

- Irland, Robert D., Kansas City: Early Stages of Gallbladder Disease.

- Smith, Wilbur, Springfield: Costly Delays in Abdominal Conditions.

#### Scientific Papers

- Bartlett, Willard, St. Louis: A Modern Conception and Plan of Anesthesia.

- Bell, Howard H., St. Louis: Allergy and Immunity in Tuberculosis; Illustrated With Lantern Slides.

- Black, Donald R., Kansas City: Circulatory Disturbances in Diabetes.

- Brown, James Barrett, St. Louis: Late Treatment of Burns of the Extremities.

- Burford, C. E., St. Louis: Further Observations on Nephropexy and Ureteroplasty for Relief of Urinary Obstruction and Pain.

- Campbell, Frederick B., Kansas City: The Diagnosis of Common Anorectal Diseases, With Motion Picture Demonstration.

- Carroll, Grayson, St. Louis: Urinary Bladder Obstruction Not Due to Prostatic Hypertrophy.

- Clasen, Arthur C., Kansas City: Obesity and Leanness; Classification and Management.

- Cole, Paul F., Springfield: Phytobezoar (Diospyri Virginianae); Report of Cases.

- Coughlin, W. T., St. Louis: Sympathectomy.

- Deweese, E. R., Kansas City: Broncho-Sinusitis; The X-Ray Examination and Its Correlation With Clinical Symptoms.

- Elliott, James R., Kansas City: Arthritis of the Feet.

- Fischel, Ellis, St. Louis: Treatment of Cancer of the Tongue.

- Gallagher, W. J., St. Louis: Primary Carcinoma of the Fallopian Tube.

- Guyot, J. De Voine, Higginsville: Some Problems in Diagnosis and Treatment of the Aged.

- Hanser, Theodore H., St. Louis: Toxic Goiter: Early Symptoms, Diagnosis and Treatment.

- Hoffmann, R. Lee, Kansas City: So-Called Pyelitis.

- Klinefelter, M. L., St. Louis: Fractures Involving the Elbow.

- Lonsway, M. J., St. Louis: The Underfed Infant.

- McMahon, B. J., St. Louis: Significance of Systemic Manifestations of Paranasal Infection.

- McVay, James R., Kansas City: Bilateral Stones in the Kidney.

- Mercer, C. Wilbur, Kansas City: The Fundamental Principles of Diagnosis in Low Back Lesions; Illustrated with Lantern Slides.

- Narr, Frederick C., Kansas City: Structural Changes in the Kidneys in Hypertension and Glomerular Nephritis.

- Neal, M. Pinson, Columbia, and Simpson, Burton T., Buffalo, N. Y.: Diseases of the Male Breast.

- O'Keefe, Chas. D., St. Louis: Uterine Hemorrhage.

- Robinson, G. Wilse, Jr., Kansas City: Hemiplegia; Its Causes and Treatment.

- Sexton, D. L., St. Louis: Endocrinology; Its Application in General Practice.

- Snider, Sam, Kansas City: The Indication for Artificial Pneumothorax in Tuberculosis; Illustrated With Lantern Slides.

- Thompson, J. W., Jr., St. Louis: Duodenal Ulcer: Surgical Treatment With Case Reports.

- Vinyard, Robert, St. Louis: Spinal Anesthesia in Bladder Surgery. Report of cases.

- Young, Willis B., St. Louis: Coexistent Gallbladder, Renal and Ureteral Stones.

### CAMDEN COUNTY MEDICAL SOCIETY

- Officers of the Camden County Medical Society for the ensuing year were elected as follows: Dr. G. M. Moore, Linn Creek, president; Dr. E. G. Claiborne, Decaturville, vice president; Dr. G. T. Myers, Macks Creek, secretary-treasurer. Dr. Moore was elected delegate to the State Meeting.  
G. T. MYERS, M.D., Secretary.



### CLAY COUNTY MEDICAL SOCIETY

The Clay County Medical Society met in Excelsior Springs at the famous Snapp Hotel for a specially prepared dinner, Thursday, February 27. The president, Dr. E. C. Robichaux, Excelsior Springs, presided. Nine members and eight ladies were seated at the table.

The Woman's Auxiliary held their meeting in the spacious Snapp parlors while the scientific session was in progress.

Dr. S. D. Henry, Excelsior Springs, read a paper on "Acute Infections in the Adult Respiratory Tract." In this contribution the Doctor touched upon numerous problems confronting the practitioner in his office and at the bedside. The paper was strongly practical and went thoroughly into diagnosis and treatment. Dr. J. E. Baird, Excelsior Springs, led the discussion, in which all members participated.

Dr. Burton Maltby, Liberty, gave a paper on "Acute Infections of the Respiratory Tract in Children." The trained observer was apparent in every line of this paper; Dr. Maltby is a convincing speaker with abundant experience to support his conclusions. Much was said about nasopharyngeal and labyrinth invasion and treatment, both local and general. This symposium by home men was a very profitable one for every member present.

The president appointed a committee to draft resolutions on the death of Dr. Haynie Rowell, Kearney, who died earlier in the month. Drs. W. H. Goodson, Liberty; C. H. Suddarth, Excelsior Springs; and J. J. Gaines, Excelsior Springs, were named.

### GREENE COUNTY MEDICAL SOCIETY

The regular meeting of the Greene County Medical Society was held January 10, at the public library, and the president, Dr. Arthur D. Knabb, Springfield, opened the meeting. The following members were present: Drs. J. W. Love, J. F. Leslie, O. C. Horst, John Williams, Robert Glynn, P. F. Cole, G. D. Callaway, J. E. Dewey, W. R. Beatie, A. W. Gifford, S. F. Freeman, J. N. Wakeman, L. L. Henson, T. O. Klingner, and W. E. Handley, all of Springfield.

The minutes of the previous meeting were read and approved. Reports of standing committees were made. First, Dr. Love reported on public health and legislation. Dr. Callaway reported for the program committee. In the absence of members of the banquet committee no report was made. The secretary's annual report for 1929 was read and approved.

The chair introduced Dr. Robert Glynn, the newly elected president, who delivered the president's address, his subject being "The Nature of Disease."

President Glynn appointed the following committees for 1930: Program, J. E. Dewey, U. J. Busiek, S. F. Freeman; public policy and legislation, Joseph W. Love, A. D. Knabb, W. P. Patterson; banquet, Garrett Hogg, W. E. Handley, W. H. Burke.

The next meeting will be the annual banquet to be held at the Kentwood Arms Hotel.

#### Meeting of January 24

About fifty members and guests attended the annual banquet, January 24, at the Kentwood Arms Hotel. Dr. James E. Cox, professor of English, Drury College, Springfield, was the principal speaker, his subject being "Two Hypochondriacs of the 18th Century."

#### Meeting of February 15

The regular meeting was held February 15 at

the Springfield Public Library with thirty-three present. The minutes of two previous meetings were read and approved.

The scientific program consisted of a paper, illustrated with lantern slides, by Dr. Paul F. Cole, Springfield, entitled "A Tour of the Colon With an X-Ray Machine." This was an interesting and instructive program. In this sight-seeing tour the speaker presented the subject in a unique manner which stimulated deeper thought in the fields of surgery, internal medicine, and general practice. On entering the colon by way of the ileocecal valve a great many anatomical and pathological points and conditions of interest were discussed such as appendix, cecum, megacolon, redundant colon, benign and malignant tumors, colonic stasis, colitis, constipation, Jackson's membrane and Lane's "First and Last Kink."

The paper was thoroughly discussed by various members of the Society.

J. N. WAKEMAN, M.D., Secretary.

### JASPER COUNTY MEDICAL SOCIETY

The Jasper County Medical Society met February 4, at 8:00 p. m., with the president, Dr. Charles T. Reid, Joplin, in the chair. There were eighteen members and five visitors present. The minutes of the previous meeting were read and approved.

The secretary, Dr. O. T. Blanke, Joplin, brought up the matter of securing a motion picture machine. On motion of Dr. L. C. Chenoweth, Joplin, seconded by Dr. H. L. Wilbur, Joplin, the president appointed the secretary as a committee of one with power to arrange for the rental of a machine if possible.

The scientific program was furnished by Dr. R. M. Klemme, St. Louis, who spoke on "Trigeminal Neuralgia," illustrated with lantern slides. He presented an operative case and discussed differential diagnosis.

Dr. Klemme's paper was thoroughly discussed by several members.

#### Meeting of February 11

The meeting opened at 7:45 p. m. with the President, Dr. Charles T. Reid, Joplin, in the chair. There were sixteen members and five visitors present. Minutes of the last meeting were read and approved.

Dr. L. C. Chenoweth, Joplin, discussed the matter of prospective national legislation regarding a narcotic dictator. He abstracted an editorial in the current number of J. A. M. A. It was suggested by Dr. M. B. Harutun, city commissioner of health, that since the editorial appeared in the current number more time be given the members to study the subject and that they should then act according to the dictates of their own consciences.

Dr. Harutun discussed the presence of a mild epidemic of smallpox in an adjoining community. He stated that court decisions sustained the opinion that all school children could be forced to be vaccinated and he suggested that they be so treated by their family physician or in his office.

Dr. Chenoweth, member of the board of the city library, brought up the matter of antivaccination literature and propaganda being supplied for the library shelves.

Dr. C. T. Reid, Joplin, reported the request that the Society designate one member to act on a committee with representatives from other organizations in handling the coming clinic for crippled children. A motion was made by Dr. A. B. Clark and seconded by Dr. John Wm. Barson that the presi-

dent appoint such a representative. Dr. S. A. Grantham was appointed by the chair.

Under case reports, Dr. J. L. Sims presented an accident case seen yesterday. It was discussed by Drs. Barson, Wilbur, DeTar, and Chenoweth.

The formal paper for the evening was given by Dr. Clark on the subject of "Pathological Causes of Sudden Death." He presented a wide variety of ordinary and extraordinary causes illustrated by case histories. The paper was freely discussed by nearly all present.

In closing, the president pointed out that the meeting demonstrated the fact that a very successful program could be presented by a local man who would take the time and trouble to prepare something. The discussion was entered into more freely and by a greater number of those present than is ordinarily the case and the success of the evening is expected to stimulate other members of the Society to prepare papers.

#### Meeting of February 18

The meeting was called to order by the president, Dr. Charles T. Reid, at 7:45 p. m. Seventeen members and one visitor were present. The minutes of the last meeting were read and approved.

The matter of the proposed narcotic legislation was again brought up. A motion was made by Dr. H. D. McGaughey and seconded by Dr. W. S. Loveland that the secretary send a letter to our congressman and senators protesting against the passage of this legislation, and attach to the letter a list of the members of the Society. The motion carried.

It was brought to the attention of the Society that in further pending national legislation there was omitted the present allowance of 12 pints of liquor. Sentiment of the discussion was that there was too great a tendency toward class legislation and the regulation by laymen of the prerogatives of the physician. Dr. McGaughey amended his original motion with the consent of his second so that there should be included in the letter a paragraph calling attention to this omission in the proposed Williamson bill and registering a protest against its passage.

The secretary reported that a committee from the county dental society had met with him to extend an invitation for a joint meeting some time this spring at a date when a suitable speaker could be obtained.

A motion was made by Dr. Loveland and seconded by Dr. Sims, that the Society accept the invitation, and the motion carried.

A motion made by Dr. J. W. Barson and seconded by Dr. R. E. Myers that the meeting be a dinner with the scientific program following and a committee appointed to act with the committee from the dental society in arranging for the meeting carried.

The president appointed Dr. Barson, chairman, and Dr. Sims and Dr. O. T. Blanke on the committee.

The scientific program was presented by Dr. W. L. Post, Joplin, on the subject of "Iodized Oil, a Diagnostic Aid in Pulmonary Disease." He gave a brief review of the history and different methods used in this procedure and illustrated his talk with numerous case histories and X-ray films. The paper was freely discussed by those present.

#### Meeting of February 25

The Society met February 25. In the absence of the president and vice president, Dr. O. T. Blanke, secretary, presided. Twelve members were present.

Business matters occupied the entire evening as the speaker was unable to be present. Dr. J. L. Sims, Joplin, presented a letter from Senator Harry B. Hawes, of Missouri, expressing his views on the proposed national liquor legislation.

The matter of securing Dr. Richard L. Sutton, Kansas City, in conjunction with the Joplin Woman's Club was discussed. It was the opinion of the members present that if it could be arranged for Dr. Sutton to present a paper and hold a clinic at our regular Tuesday meeting, the Society would be glad to cooperate with the Joplin Woman's Club in securing him.

Dr. L. W. Baxter, Joplin, reported on the work of the Crippled Children's Committee and requested that the Society select four orthopedists, two of whom would be designated as consultants in the coming clinic. Dr. Baxter moved, seconded by Dr. R. M. James, Joplin, that the Society authorize letters to Drs. F. D. Dickson and C. B. Francisco, Kansas City, and Drs. LeRoy C. Abbott and M. L. Klinefelter, St. Louis, expressing a willingness of the local profession to cooperate with whichever two are designated to be the consultants. The motion carried.

Dr. J. W. Barson, Joplin, expressed the opinion that something should be done to make prescription alcohol and whiskey available to the profession in the community. Dr. Barson moved, and Dr. Chenoweth seconded the motion, that the chair appoint a committee to draw up resolutions expressing the attitude of the Society as in favor of having the county court remove the ban on prescription alcohol and whiskey, and that these resolutions be brought to the attention of the present county court members and the chairman of the County Republican Committee in an effort to secure favorable opinion. The motion was amended by Dr. A. Benson Clark, Joplin, and seconded by Dr. R. M. James, Joplin, that the secretary secure the signature of all members willing to subscribe to these resolutions and that the list of signatures be appended to the resolutions. The motion as amended, carried. Dr. A. Benson Clark was appointed chairman of the committee and empowered to appoint the other members.

#### Meeting of March 4

The meeting was called to order by the vice president, Dr. H. L. Wilbur, Joplin, with seventeen members and four visitors present.

Dr. A. Benson Clark, chairman of the committee on resolutions, relative to the liquor prescription, reported. The other members of the committee are Drs. L. C. Chenoweth and R. M. James, Joplin; R. M. Stormont, Webb City; L. B. Clinton and H. A. LaForce, Carthage.

Dr. R. E. Myers, Joplin, brought up the matter of trying to obtain a two-day course in physiotherapy as provided by the Victor X-Ray Corporation. It was moved by Dr. Chenoweth and seconded by Dr. J. L. Sims, both of Joplin, that the chair appoint a committee of two to confer with the representative of the corporation who is to be at Freeman Hospital, March 5, and try to arrange the course. The motion carried and Drs. Myers and B. E. DeTar were appointed.

The scientific program was furnished by Dr. E. J. Burch, Carthage, by a discussion of "Management of Normal Labor." He gave a short resume of early obstetrical practice and emphasized some of the elementary but fundamental practices of present day obstetrics. The paper was discussed by most of the members present.

O. T. BLANKE, M.D., Secretary.



THE KANSAS CITY ACADEMY OF  
MEDICINE

Meeting of December 20, 1929

## PERIPHERAL VASCULAR DISEASES.

—By DR. GEORGE E. BROWN, Rochester,  
Minn.

Since a comprehensive classification of peripheral vascular diseases was not found in the literature, a tentative classification was made, viz., (1) diseases of vasomotor origin, and (2) diseases of occlusive origin. Clinically, the groups may be differentiated in 85 per cent of the cases by examination of the peripheral arteries of the hands and feet. In the group of vasomotor origin two subdivisions may be made: (1) cases constrictive in nature, and (2) cases dilative in nature. An example of the main constrictive form is Raynaud's disease, and the most important dilative form is erythromelalgia. The vasomotor tonus varies in different normal persons, depending among other factors on the constitutional state of the nervous system and on the psychic reactions. In the later stages of some forms of vasomotor neurosis, the condition may become organic, as in essential hypertension. The organic or occlusive type of peripheral vascular disease may be subdivided to include (1) those of an arteriosclerotic nature, with and without thrombosis; (2) thrombo-angiitis obliterans, and (3) simple thrombosis or embolism. The term "endarteritis obliterans" should be eliminated. It was first used by Von Winiwarter to designate the disease now termed thrombo-angiitis obliterans.

In the differential diagnosis of these conditions sex should be considered; most cases of Raynaud's disease occur in women while most cases of thrombo-angiitis obliterans occur in men. Age also plays a part; thrombo-angiitis obliterans usually occurs between the ages of twenty and fifty years, and arteriosclerosis after fifty years. In thrombo-angiitis obliterans it is probable that sex, tobacco, and angiitis are etiologic factors, and focal infection in the tonsils, teeth, and other organs may be factors. Pathologically, there is cellular inflammation of the adventitia involving the media and the intima, then the formation of a thrombus, and organization and recanalization. Grossly, the vessels affected are usually closely adherent to each other. In my series, the arteries of the hands were affected in 50 per cent of the cases.

Clinically, the earliest symptoms are redness and coldness of the foot. Later, intermittent claudication develops which may occur in the affected hand as well as in the affected foot. If gangrene occurs there is rest pain or continuous pain. Superficial migrating phlebitis occurs in about 40 per cent of the cases.

In the differential diagnosis Raynaud's disease is usually symmetric, whereas Buerger's disease starts in one extremity. Biopsy is helpful in distinguishing the phlebitis feature of thrombo-angiitis obliterans from such conditions as erythema nodosum which it may resemble. Usually the histologic picture is characteristic and is in contrast to the picture of arteriosclerosis in which there is no inflammatory reaction. At times the picture may be confusing owing to the fact that both processes are present. In performing biopsy the veins should not be removed below the ankle because of the limited vascular supply at this point.

Treatment, following early diagnosis, is prophylactic

and such measures are employed as radiant heat, protection of the part at all times from the cold, increasing the circulation to the affected part, decreasing the local irritation and preventing infection by such organisms as *Trichophyton*. In the gangrenous stage, radical amputation must be considered but it should be remembered that the disease is always eventually bilateral.

Treatment by the production of fever consists of elevating the temperature of the affected part by producing fever with nonspecific protein. Relief of pain, improvement of symptoms, and establishing a direct index of the amount of local vascular spasm are possible with this procedure. The amount of vascular spasm will determine the amenability of the case to treatment by sympathetic ganglionectomy. Fever is induced by graduated doses of typhoid vaccine intravenously.

## DISCUSSION

DR. JOHN G. HAYDEN: Dr. Brown's presentation of Buerger's disease in many ways fits a case I wish to describe. A sailor developed pain in the right foot on walking, followed by muscle spasm. It was diagnosed as flatfoot and arch supports given. Tonsils and some teeth were removed. Six years later he developed spontaneous gangrene in the second toe of the right foot. The toe was amputated and a little later the great toe was removed. Gangrene developed in another toe of the same foot and at this time he came under my observation. After giving 1000 cc. of Ringer's solution intravenously for several days to reduce viscosity of the blood, a Lisfranc amputation was performed preceded by tenotomy of the tendo achillis. The wound healed without slough and the stump has since served for walking purposes.

In 1927, he pinched his right index finger which became tender, red and swollen. After several weeks of treatment under a heat lamp, his finger healed as fingers usually do when affected with Buerger's disease. Since then he has had similar trouble with several fingers. His radial pulse is present but the ulnar pulse is not felt. In 1928, he developed gangrene in the toes of the left foot. Amputation was made at the middle third of the leg; later, three inches higher and again above the knee.

In connection with the use of Ringer's solution in Buerger's disease, I wish to call attention to the article of Dr. L. L. McArthur.\* I have applied this treatment to gangrenous extremities in three other cases of different etiological origin. In one of gunshot wound of the thigh with impending gangrene, circulation improved with only a slight slough. In another of embolus at the bifurcation of the femoral artery with progressive gangrene of the foot, a line of demarcation formed following the use of Ringer's and successful amputation was made. The third was an old man with diabetes and arteriosclerosis. I have performed two leg amputations while administering Ringer's solution intravenously before, during, and subsequent to each operation. I might also add that in the first operation the anterior tibial artery was as dry as a lead pencil and required no ligature.

Regarding sympathectomy, one would expect 100 per cent cures in all functional spasmodic vascular diseases of the extremities and in a good percentage of Buerger's disease. The principle of this treatment was first given by Claude Bernard and Drs.

\* McArthur, L. L.: Trans. Western Surgical Society, 1916.

Brown and Adson deserve no little credit in its application.

DR. T. G. ORR: The hopeful attitude taken by Dr. Brown in the treatment of thrombo-angiitis obliterans is noteworthy. The medical treatment as outlined by him and the use of sympathectomy should decrease the number of amputations. The fever test as an index of operativeness is an important contribution.

The rest pain experienced by these patients is often excruciating. A patient of my own sat up for six months rubbing his leg. He became a morphine addict but after the amputation he was clinically well and gave up his habit.

Following a plan outlined in the literature, I attempted X-ray visualization of the arteries in the arm of one of my patients by the intra-arterial injection of sodium iodide. The patient developed excruciating pain in the arm, spasm of the vessels of the hand, and shock. This method, I believe, is of very little value and should rarely be used.

DR. H. R. WAHL: Does thrombo-angiitis obliterans affect the visceral vessels? I recently had a very unusual autopsy in which sections through the pancreas, kidney and the spleen showed changes in the smaller arteries that are very similar to those of thrombo-angiitis obliterans.

DR. FRANK TEACHER: The cases demonstrated by Drs. Brown and Adson and results in Raynaud's disease following sympathectomy have been remarkable, but the profession has been slow in accepting the procedure.

DR. F. C. HELWIG: What percentage of your cases started in the popliteal artery? Reports have been high. What does Dr. Brown think of Dr. Lilienthal's report of involvement of the mesenteric vessels and the coronary artery?

DR. P. H. OWENS: The case described by Dr. Hayden was of an old patient of mine. The early condition was correctly diagnosed. He later came up for compensation.

DR. FRANK I. RIDGE: Has anything appeared in the spinal cord histologically that might have some connection with the sympathetic system? Does the oil-water emulsion injection show any tendency to embolism?

DR. BROWN, in closing: In two or three cases the ganglia showed evidence of inflammation. The oil-water solutions are isotonic, finely emulsified, and are injected into the muscles in small amounts (not intravenously) where they are absorbed without residue. In answer to Dr. Wahl's question, I have seen thrombo-angiitis once in an artery in the kidney. It has been reported as having occurred in the subclavian and cerebral arteries, and I have had about five cases of sudden coronary occlusion in men less than forty years of age who were suffering with thrombo-angiitis obliterans.

I have used injections of Ringer's solution and hypertonic solution of sodium chloride and sodium citrate. The beneficial reactions obtained are due, I believe, to the introduction of a foreign element and the slight nonspecific protein reaction.

We should not be unduly optimistic in the evaluation of sympathetic ganglionectomy in the treatment of thrombo-angiitis obliterans. It will take at least fifteen years to evaluate the results obtained. The longest period of observation in my series of cases is only four and a half years. The results in about thirty-five cases observed within this period are most encouraging. The incidence of amputations in this group has been less than 10 per cent.

Meeting of January 24, 1930

## PLEURAL, PERICARDIAL AND PERITONEAL PAIN—By DR. JOSEPH A. CAPPS, Chicago, Ill.

The work to be presented upon the sensation of pain in the serous membranes, represents a continuation of earlier studies done on the pleura, peritoneum, and pericardium. These three serous membranes have many things in common and we found that methods applicable to the study of one were also adaptable to the study of the others.

The clinician has opportunities for the study of visceral pain which are not available to the physiologist. Our method was to introduce a trocar into the pleural or abdominal cavity for the purpose of withdrawing the fluid. Before the fluid was removed a silver wire was introduced through the hollow cannula and by various manipulations the end of the wire could be brought in contact with the lining of the serous cavities.

For investigation of the pleural cavities, patients with pleural effusion were used. It was found that no pain was elicited upon stimulation of the visceral pleura with the silver wire but upon irritation of the parietal pleura pain was promptly registered and was as accurately localized as if the stimulation had been applied to the skin. Stimulation of the central part of the diaphragm was followed by sensation of pain in the trapezius region usually localized at a definite point. When the peripheral part of the diaphragm was stimulated the pain was referred to the hypochondrium on the corresponding side.

The central portion of the diaphragm is supplied by the phrenic nerve whose roots of origin correspond to the 3rd, 4th and 5th cervical cutaneous segments, which in turn supply sensation to the skin and subcutaneous tissues over the side of the neck. The lateral margins of the diaphragm are supplied with spinal nerves that flow into the posterior roots of the 7th, 8th, 9th, and 10th dorsal. These afferent impulses sensitize the corresponding spinal sensory segments which innervate the abdominal wall. Thus the pain is referred to the abdomen when the margin of the diaphragm is irritated or inflamed. I would emphasize the fact that the pain from the parietal pleura is always directly localized, whereas pain from the diaphragmatic pleura is always referred.

According to Lenander's theory, abdominal pain is the result of pull upon the mesentery and is transmitted by way of the cerebrospinal nerves instead of by the sympathetic. Lenander and Ramstrom elicited pain by stimulation of the parietal peritoneum at the time of operation. Our results correspond with those of Lenander and Ramstrom. We found that the pain was accurately localized. However, when the under surface of the central part of the diaphragm was stimulated pain was elicited in the neck, as upon stimulation of the pleural surface of the center of the diaphragm. Stimulation of the marginal part of the abdominal diaphragm led to reference of the pain by way of the dorsal segments to the hypochondrium. From these experiments it is concluded that the distribution of the phrenic nerve to the under part of the diaphragm corresponds closely with that of the upper part.

According to current literature, fibrinous or dry pericarditis may be characterized by severe pain felt over the precordium or referred to the neck, shoul-



ders or abdomen. It is recognized, however, that pain may be entirely absent.

Our experiments were carried out in cases of pericardial effusion by the wire method after the introduction of a trochar through the chest wall into the pericardial sac at various levels. When the sac was penetrated at, or above, the 4th interspace there was no pain. When, however, the penetration was through the 5th and 6th interspaces pain was invariably felt in the left side of the neck. After the sac was entered, the wire was moved freely over the heart and brought in contact with the serous lining. Such contact (whether pressure or a scratching movement) produced no pain whatever in the serous lining of the sac. The heart muscle itself was likewise unresponsive to pain sense.

In a series of cases of fibrinous pericarditis uncomplicated by pleurisy or heart disease, the patients complained of no pain whatever. In many of these cases, X-ray and postmortem examination revealed the actual pathological condition. In another group of cases of coronary thrombosis in which a pericardial friction developed in the course of from two to four days after the onset, it was impossible to obtain any evidence of a new pain such as would be expected from a complication.

There are many cases in which a true fibrinous pericarditis is associated with pleural pericarditis, or mediastinitis. In these cases pain is nearly always present but is due to involvement of the pleural pericardium. It is probably the associated presence of pleuropericarditis that has caused many clinicians to consider fibrinous pericarditis a painful disease. The two conditions, however, can usually be differentiated. Pleuropericarditis may set up a pain substernal or at the precordium. By involvement of the lowest part of the outer surface of the pericardial sac or central portion of the diaphragm, it may set up pain referred to the neck. If such pleural inflammation spreads over the diaphragm to the margin, then abdominal pain is experienced.

All these pains are influenced by respiration and cough. It is apparent that a careful study of the quality and localization of the pain will yield accurate information as to its point of origin.

#### DISCUSSION

DR. P. T. BOHAN: Last week I saw two cases that illustrate some of the points brought out by Dr. Capps. In one patient a loud and fro friction rub was heard over the precordium, but there had been no pain of any kind. In the other, a girl of 18, there had been epigastric pain aggravated by breathing so that her chest was strapped. A diagnosis of pericarditis with effusion was made and a paracentesis of the pericardium was performed, introducing the needle in the 5th interspace, just outside the nipple line. Knowing from Dr. Capps' investigations that puncturing the pericardium at this point causes referred pain, the patient was told that she would have pain in the shoulder when the needle was introduced, but she insisted she did not. I concluded that she had the pain, but was too nervous to notice it.

The first patient illustrates the important diagnostic point established by Dr. Capps,—that dry pericarditis is painless. His observation that pleuritic pain referred to the abdomen indicates involvement of the diaphragmatic pleura, is borne out by the history of the second patient.

In these days when the tendency toward the solving of diagnostic problems is by objective examinations, it is interesting to hear a clinician of experi-

ence emphasize the importance of analyzing the sensation of pain. From a small point of tenderness in the trapezius, through irritation of the phrenic nerve, thoracic disease may sometimes be differentiated from surgical conditions in the abdomen.

I have heard Dr. Capps referred to as the "phrenic nerve specialist," but I think he would rather be remembered as just a doctor who combines the qualities of practitioner, teacher and investigator.

DR. A. M. GINSBERG: This is a practical age. Hysteria seems to be vanishing. The chief complaint of most patients is pain and the work just presented by Dr. Capps has been a great contribution in the differential diagnosis of those conditions with which this particular type of pain is associated.

DR. C. W. GREENE, Columbia: Dr. Capps has made a very able analysis of this clinical field. It is a pleasure to me as a teacher of medical physiology to see so many of the modern clinicians making an effort to interpret pain in terms of good physiology.

In my experiments on the dog, concerning the motor and sensory components of the phrenic nerve, I have been impressed by the evidence of afferent or sensory pathways leading to reflexes through the silent or autonomic tracts. Felix has studied the question as to whether the afferent sensory paths of the phrenic nerves are of cervical origin or of thoracic sympathetic origin. When the phrenic nerve is stimulated directly, there is a change in the blood pressure and of the heart rate, a pulmonary vasoconstriction occurs and there is a reflex respiratory augmentation. I can offer as a new contribution the fact that there is also a sharp change in the coronaries,—usually dilatation, occasionally constriction. These reflex reactions are all more or less augmented in disease, especially in inflammation of their terminal sensory areas.

DR. CAPPS, in closing: I appreciate the kind remarks of Dr. Bohan, but I want to disclaim any profound knowledge of this subject. Using this simple method of investigation, I worked as a clinician for ten years on the pleural cavity and for ten years more on the peritoneal and pericardial membranes. Consequently, these results represent the compilation of a great many observations which depended upon a rather simple form of experiment. The interpretation of results was based on the fundamental work of physiologists such as Head and Ross.

In regard to Dr. Greene's statement about the phrenic nerve reflex causing coronary spasm, Albutt states that an anginal pain is sometimes associated with pericarditis. He says that the upper part of the pericardial sac is in close contact with the rich nerve supply about the aorta and that inflammation in this region may excite coronary pain. I should like to ask Dr. Greene if the increase in the heart rate of experimental animals following irrigation of the phrenic nerve could have been the result of pain impulses.

DR. GREENE: In dog experiments we believe what the dog says in reaction to stimulations (unlike Dr. Bohan's response to the report of the nervous girl undergoing pericardial puncture). What we rely on and interpret with confidence are the terminal phenomena. To my mind, change in the dog's heart rate and in the coronary blood flow due to stimulation of the phrenic nerve seem not to be associated with acute pain. It may be different in the human.

### NEWTON COUNTY MEDICAL SOCIETY

At the December meeting of the Newton County Medical Society held at Neosho, the following officers were elected for 1930: President, Dr. J. A. Guthrie, Neosho; vice president, Dr. C. E. Maness, Neosho; secretary-treasurer, Dr. J. R. Reynolds, Neosho; delegate, Dr. J. L. Edmondson, Stella; alternate, Dr. R. F. Cheatham, Diamond.

J. R. REYNOLDS, M.D., Secretary.

### NODAWAY COUNTY MEDICAL SOCIETY

The Nodaway County Medical Society held its first regular monthly meeting of the current year on Friday, January 10, in the first floor lecture room of the Sisters of St. Francis Hospital at Maryville. The meeting was called to order by the president, Dr. L. E. Dean, Maryville, at 7:30 p. m. Reversing the usual custom, the scientific program preceded the routine business session.

Dr. C. G. Leitch, Kansas City, instructor in pathology at the University of Kansas School of Medicine, by courtesy of the Postgraduate Committee of the State Medical Association, presented a paper on "Some Common Pathological Findings." He gave the Society a broad survey of many of the high lights in elementary pathology, following out the idea originated last month in reviewing the basic medical sciences. Dr. Leitch based his talk largely on the conditions present in a score of prepared specimens which he had provided. He limited his remarks largely to a consideration of the abnormalities encountered, with brief references to the clinical pictures which they would produce in life. Dr. Leitch made his study a vivid one and his audience found a great deal that was of interest in his presentations.

The business session of the Society followed Dr. Leitch's presentation. The following members were present: Dr. W. M. Hindman, Burlington Junction; Dr. Chas. W. Kirk, Hopkins; Dr. Chas. D. Humberd, Barnard; Drs. C. T. Bell, K. C. Cummins, L. E. Dean, R. C. Person and Wm. M. Wallis, Jr., Maryville. Dr. P. R. Bridgman, Hopkins, Dr. C. G. Leitch and Dr. C. J. Weber, research bio-chemist in the University of Kansas School of Medicine, were guests of the Society.

The minutes of the regular meeting of December 13, 1929, were read and approved. Dr. C. D. Humberd, Barnard, treasurer, gave his annual report for the year 1929. Dr. C. T. Bell moved that the report be accepted. The motion was seconded by Dr. R. C. Person, and carried.

The committee of censors reported favorably on Dr. Jack Rowlett's application for membership. Dr. Wm. M. Wallis, Jr., moved that the secretary be instructed to cast the unanimous vote of the Society, electing Dr. Rowlett to membership. The motion was seconded by Dr. W. M. Hindman, and carried.

Topics for consideration at future scientific sessions were discussed and nearly every member present named subjects in which he would find much interest.

Dr. R. C. Person, Maryville, moved that the meeting adjourn. The motion was seconded by Dr. C. W. Kirk, and carried at 9:25 p. m. Most of the members, however, extended the immediate adjournment only to the Knox Cafe for an informal supper with Drs. Leitch and Weber.

#### Meeting of February 14, 1930

The Nodaway County Medical Society held its regular February meeting on Friday, the 14th, in the first floor lecture room of the Sisters of St. Francis Hospital, Maryville. The meeting was called to order by the president, Dr. L. E. Dean,

Maryville, at 7:30 p. m. The night was very inclement, so there was only a limited attendance. The following were present: Drs. C. T. Bell, L. E. Dean, C. P. Fryer, C. V. Martin and R. C. Person, of Maryville; Dr. Charles D. Humberd, Barnard. Dr. Clyde O. Donaldson, Kansas City, Missouri, was present as the guest of the Society.

The secretary read the application of Dr. J. A. Bloomer, Maryville, for membership in the Society. A committee of investigation was appointed by the president consisting of Drs. C. V. Martin, R. C. Person and K. C. Cummins, of Maryville, to report on the application at the next regular meeting.

The meeting was then turned over to Dr. Donaldson, who came as a lecturer through the courtesy of the Postgraduate Committee of the State Association. Dr. Donaldson briefly reviewed the history and development of roentgenology, and discussed the principles and value of the X-ray as a diagnostic agent, illustrating his lecture with several dozen demonstrative films. He then read an excellent paper on "The Treatment of Cancer of the Cervix." This paper was followed by Dr. Donaldson's motion picture film which presented the technic outlined in the lecture. Dr. Donaldson's able presentations were received with much enthusiasm by his small audience.

Dr. C. V. Martin moved the meeting adjourn. The motion was seconded by Dr. R. C. Person and carried at 9:20 p. m. The whole body then indulged in an informal luncheon with Dr. Donaldson at the Knox Cafe.

C. D. HUMBERD, M.D., Secretary.

### RALLS COUNTY MEDICAL SOCIETY

The Ralls County Medical Society has elected the following officers for 1930: President, Dr. W. F. Botts, Center; secretary, Dr. T. J. Downing, New London; delegate, Dr. T. J. Downing.

T. J. DOWNING, M.D., Secretary.

### STODDARD COUNTY MEDICAL SOCIETY

At the last meeting of the Stoddard County Medical Society, the application of Dr. D. A. Hoxie, Dexter, was read and after having been reported favorable by the board of censors Dr. Hoxie was elected to membership.

In view of his long and faithful services, Dr. Eldon Phillips, Bloomfield, was elected an Honor Member.

The following officers were elected for 1930: President, Dr. J. P. Brandon, Essex; vice president, Dr. W. H. Goad, Bernie; secretary, Dr. Frank LaRue, Dexter; treasurer, Dr. W. C. Dieckman, Dexter; delegate, Dr. W. C. Dieckmann; alternate, Dr. Edward Ford, Bloomfield; board of censors, Drs. W. J. Hux, Essex (term expires, 1933); T. C. Allen, Bernie (term expires, 1932); and J. P. Brandon, Essex (term expires, 1931).

FRANK LARUE, M.D., Secretary.

### ST. LOUIS COUNTY MEDICAL SOCIETY

The regular meeting of the St. Louis County Medical Society was held at the home of Dr. William F. O'Malley, Kirkwood, Wednesday afternoon, February 12. The meeting was called to order at 3:00 p. m. by the president, Dr. R. B. Denny, Creve Coeur, with the following members present: Drs. Frank P. Knabb, Joseph D. Stoezle, Clayton; John H. Sutter, University City; Louis C. Obrock, Clyde P. Dyer, Otto W. Koch, G. Jones, F. C. E. Kuhlmann, St. Louis; Fenton J. Petersen, Richmond Heights; D. Henry Hanson, John H. Armstrong, Roswell H. Trumpour, Kirkwood; Henry N. Corley, Carl C. Irick, Webster Groves; E. E. Tremain,



Maplewood; J. A. Townsend, Eureka; C. H. Denny, H. M. Denny, R. B. Denny, Creve Coeur. Visitors were Drs. W. A. Smith and Wm. E. Leighton, St. Louis.

Dr. Leighton read a paper, illustrated with lantern slides, on the "Diagnosis and Treatment of Cancer." Discussion followed by Drs. Armstrong, O'Malley, Hanson, Sutter, and Tremain. A standing vote of thanks was tendered Dr. Leighton.

The following applicants were elected to active membership: Drs. C. H. Leslie, George H. Klinkerfuss, F. A. Dill, Mary McLoon, St. Louis; and R. E. Baker, Webster Groves. Dr. C. D. Pickrell and Dr. Leighton were voted corresponding members.

A report of the finance committee by Dr. Jones, gave the report of the treasurer as correct.

A motion by Dr. Dyer that the by-laws be amended so that a meeting would be held at 2:30 p. m. on the second Wednesday and at 8:00 p. m. on the fourth Wednesday of each month was given first reading.

A motion made by Dr. Dyer and seconded by Dr. Armstrong, that Dr. Howard Carter, a member now living in Nevada, Missouri, be made an Honor Motion carried unanimously.

A motion made by Dr. Dyer and seconded by Dr. Jones and Dr. Hanson that the work of Dr. A. W. Westrup, Webster Groves, as superintendent of the County Hospital be endorsed, carried unanimously.

#### Meeting of February 26, 1930

The adjourned meeting of the St. Louis County Medical Society met February 26 at 9:00 p. m. at the home of Dr. Wm. F. O'Malley, Kirkwood. Dr. R. B. Denny, Creve Coeur, president, presided.

Dr. J. F. Bredeck, St. Louis, gave an interesting paper on "Pulmonary Tuberculosis." Discussion followed, and a rising vote of thanks was tendered Dr. Bredeck.

The members present were Drs. J. H. Sutter, University City; Drs. C. H. Denny and R. B. Denny, Creve Coeur; Drs. J. D. Hayward, L. C. Obrock, F. J. Peterson, of St. Louis; Drs. H. N. Corley, C. C. Irick, A. C. Hofsommer, W. F. O'Malley, of Webster Groves; Dr. E. O. Breckenridge, Maplewood; Dr. Richard Paddock, Clayton; Dr. C. H. Leslie, Kirkwood.

#### Meeting of March 13, 1930

The meeting was called to order by Dr. R. B. Denny, Creve Coeur, president, at 3:00 p. m., in the home of Dr. Wm. F. O'Malley, Kirkwood. The members present were Drs. H. M. Denny and R. B. Denny, of Creve Coeur; Drs. L. C. Obrock, G. Jones, O. W. Koch, C. P. Dyer, F. J. Peterson, Mary A. McLoon, F. A. Dill, of St. Louis; Dr. F. P. Knabb, Valley Park; Drs. C. H. Denny and J. D. Stoelzle, of Clayton; Drs. L. W. Cape, W. H. Townsend, P. N. Davis, E. O. Breckenridge, E. E. Tremain, of Maplewood; Drs. D. H. Hanson and R. H. Trumpour, of Kirkwood; Drs. C. C. Irick, R. E. Baker, H. N. Corley, A. W. Westrup, Irene M. Blanchard, W. F. O'Malley, of Webster Groves. Visitors: Drs. Helen Gage and T. C. Hemplemann, of St. Louis.

Dr. W. H. Townsend moved that the president appoint one member to draw up a resolution with himself and the secretary, endorsing John O. Steel, of Kirkwood, to the St. Louis County Court as secretary and purchasing agent for the St. Louis County Hospital. Dr. O. W. Koch seconded the motion and Dr. C. P. Dyer was appointed.

Dr. T. C. Hemplemann, of St. Louis, gave a paper

on "Throat Infections in Children." The paper was followed by a lengthy discussion.

A rising vote of thanks was given Dr. Hempelmann.

Dr. Bertrand Y. Glassberg, St. Louis, was elected a member by transfer from the St. Louis Medical Society.

Dr. Dyer moved the meeting adjourn until March 26 and the motion carried.

E. E. TREMAIN, M.D., Secretary.

#### ST. LOUIS MEDICAL SOCIETY

##### Meeting of General Society, January 31, 1930

The meeting was called to order at 8:40 p. m. by the second vice president, Dr. Charles F. Sherwin.

The following program was given:

"The Chronicity Factors of Peptic Ulcer," Dr. Joseph W. Larimore.

"Surgery of Peptic Ulcer," Dr. O. R. Sevin.

Discussion by Drs. Lawrence D. Thompson, H. W. Soper and John McH. Dean; Dr. Larimore closing.

"Diathermy of the Rectum and Pelvic Colon," Dr. H. W. Soper.

Discussion by Drs. J. W. Larimore, Warren R. Rainey, Grayson Carroll, L. D. Thompson, A. J. Walsheid, New York City; Dr. Soper closing.

Attendance, 87.

HERBERT S. LANGSDORF, M.D., Secretary.

#### VERNON-CEDAR COUNTY MEDICAL SOCIETY

The Vernon-Cedar County Medical Society has elected the following officers for 1930: President, Dr. Forrest L. Martin, Nevada; vice president, Dr. C. B. Davis, Walker; secretary, Dr. J. T. Hornback, Nevada; delegate, Dr. E. H. Liston, Nevada; alternate, Dr. J. W. Dawson, Eldorado Springs.

J. T. HORNBACK, M.D., Secretary.

### WOMAN'S AUXILIARY

#### OFFICERS 1929-30

President, Mrs. M. P. Ravenel, Columbia.

President-Elect, Mrs. A. W. McAlester, Kansas City.

1st Vice President, Mrs. U. J. Busiek, Springfield.

2nd Vice President, Mrs. James F. Owens, St. Joseph.

3rd Vice President, Mrs. H. C. Brashear, Mexico.

4th Vice President, Mrs. L. G. McCutchen, St. Louis.

Corresponding Secretary, Mrs. C. M. Sneed, Columbia.

Recording Secretary, Mrs. David S. Long, Harrisonville.

Treasurer, Mrs. R. C. Haynes, Marshall.

Auditor, Mrs. C. T. Ryland, Lexington.

Directors (2 years): Mrs. W. W. Ford, Gordonville; Mrs. Harry F. Parker, Warrensburg; Mrs. F. H. Spencer, St. Joseph; Mrs. C. C. Cummings, Joplin; Mrs. Raymond Spivy, St. Louis. (1 year): Mrs. T. S. Fleming, Moberly; Mrs. S. F. Freeman, Springfield; Mrs. Robert McE. Schaffler, Kansas City; Mrs. Hudson Talbott, St. Louis; Mrs. J. J. Gaines, Excelsior Springs.

#### MEETING OF EXECUTIVE COUNCIL

The Executive Council of the Woman's Auxiliary met February 18 at the home of Mrs. W. M. Bickford, Marshall. After a delicious luncheon the

meeting was called to order. The following were present: Mrs. M. P. Ravenel, Columbia, president; Mrs. A. W. McAlester, Kansas City, president-elect; Mrs. U. J. Busiek, Springfield, first vice president; Mrs. H. C. Brashear, Mexico, third vice president; Mrs. C. M. Sneed, Columbia, corresponding secretary; Mrs. R. C. Haynes, Marshall, treasurer; Mrs. W. M. Bickford, Marshall, member of advisory board.

The Auxiliary voted to send \$10 to the National Auxiliary in response to the request for a donation by Mrs. James Blake, Hopkins, Minnesota, chairman of finance.

Mrs. W. M. Bickford accepted the appointment of chairman of the nominating committee.

A fine report on the Scholarship Fund was given, as follows:

#### Scholarship Fund

Balance February 1, 1930.....\$9.30

#### Receipts

February 18, St. Louis City Auxiliary \$120.50

February 20, Vernon-Cedar County

Auxiliary ..... 1.60 122.10

Balance March 1, 1930.....\$131.40

Mrs. M. P. RAVENEL, President.

#### CLAY COUNTY AUXILIARY

The Woman's Auxiliary to the Clay County Medical Society met jointly with the Clay County Medical Society at a dinner meeting at the Snapp Hotel, Excelsior Springs, February 27. Eight members were present.

At a business session following the dinner officers for the ensuing year were elected as follows: President, Mrs. C. H. Suddarth, Excelsior Springs; first vice president, Mrs. H. J. Clark, Excelsior Springs; second vice president, Mrs. J. H. Rothwell, Liberty; third vice president, Mrs. J. W. Epler, Kearney; secretary-treasurer, Mrs. W. L. Wysong, Liberty.

#### JASPER COUNTY AUXILIARY

The Woman's Auxiliary to the Jasper County Medical Society met in Joplin at 7:45 p. m., February 12, with a small attendance. The group voted to support the coming clinic for crippled children and to support a medical student now in training.

## CORRESPONDENCE

### DAUGHTER OF FIRST USER OF ETHER ANESTHETIC DIES

St. Louis, March 1, 1930.

To the Editor:

On the morning of January 8, 1930, there passed away Mrs. Frances Long Taylor, at Athens, Georgia, in the eighty-fifth year of her life. Mrs. Taylor was the second and favorite child of the twelve children of Dr. Crawford Williamson Long, who was the first man to use ether as an anesthetic. Mrs. Taylor was a typical flower of the old South, kindly, benign, with a touch of majesty softened by a sweet simplicity. For years she set as her task in life the establishment of the claim of her father as discoverer of anesthesia, leaving no stone unturned, appealing to all agencies whose judgments might avail in establishing right and justice, and assured that, in the end, her dear father would occupy his proper niche in the house of history.

In November of last year, she fell and sustained a fracture of the hip. This injury was responsible

for her death nearly two months later. Her buoyancy of spirit never deserted her, and her faith in God and man remained unshaken up to her last conscious moments. How different it would have been had she permitted years of battle to shrivel her soul! Shortly before her death, she had written:

The silent door swings on its hinges,  
Opens, closes, and no more

I pass this way.

So while I may,

With all my might I will essay

Sweet comfort and delight

To all I meet upon the Pilgrim's Way.

For no man travels twice the great Highway

That winds through darkness up to light

Through night

To day.

M. G. SEELIG, M.D.

## TRUTH ABOUT MEDICINES

### NEW AND NON-OFFICIAL REMEDIES

ABBOTT'S VIOSTEROL COD LIVER OIL.—A brand of cod liver oil with viosterol 5 D, N. N. R. Abbott Laboratories, North Chicago, Ill.

SQUIBB'S VIOSTEROL COD LIVER OIL, 5 D.—A brand of cod liver oil with viosterol 5 D, N. N. R. E. R. Squibb & Sons, New York.

SQUIBB'S VIOSTEROL COD LIVER OIL 5 D MINT FLAVORED.—A brand of cod liver oil with viosterol 5 D, N. N. R. containing 0.67 per cent of oil of spearmint as flavoring. E. R. Squibb & Sons, New York (Jour. A. M. A., August 31, 1929, p. 693.)

OINTMENT EPHEDRINE COMPOUND.—An ointment containing ephedrine—Lilly (New and Nonofficial Remedies, 1929, p. 166), 1 Gm.; menthol, 0.65 Gm.; camphor, 0.65 Gm.; oil of thyme, 0.0375 Gm.; hydrous wool fat, 5 Gm.; liquid petrolatum 24 Gm.; white petrolatum, to make 100 Gm. Eli Lilly & Co., Indianapolis.

LILLY'S EPHEDRINE JELLY.—It is composed of ephedrine sulphate—Lilly (New and Nonofficial Remedies, 1929, p. 169), 1 Gm.; glycerin, 15 Gm.; tragacanth, 1.5 Gm.; eucalyptol, 0.1 Gm.; oil of wintergreen, 0.005 Gm.; oil of dwarf pine needles, 0.005 Gm.; water to make 100 Gm. Eli Lilly & Co., Indianapolis.

VIOFORM — Ciba. — Iodochlorhydroxyquinolin.—A substitution compound of anachlor-ortho-hydroxyquinoline resulting from the introduction of one atom of iodine. Vioform—Ciba is used as an odorless substitute for iodoform. It is used as a dusting powder for application to wounds, ulcers, burns, exudative skin eruptions, etc. Ciba Co., Inc., New York.

I-X BARIUM MEAL.—A mixture of barium sulphate U. S. P., 85 per cent; native aluminum silicate, 10 per cent; malted milk (malt extract-milk powder), 5 per cent; with a trace of saccharin. The preparation is used for roentgen-ray examinations, administered orally or by rectum. Dick X-Ray Co., St. Louis.

MEAD'S POWDERED LACTIC ACID MILK NONCURDLING, No. 1 WITH DEXTRI-MALTOSE.—A modified milk product prepared by adding lactic acid, U. S. P., and a maltose-dextrin preparation to whole milk, heating, drying, and powdering. It is proposed for use in the feeding of infants when it is desired to prescribe an acidulated milk with a certain amount of added carbohydrate. Mead Johnson & Co., Evansville, Ind. (Jour. A. M. A., September 7, 1929, p. 769.)



**SORBE.**—A mixture of soy bean flour 67.5 per cent and barley flour 9.5 per cent, to which has been added olive oil 19.0 per cent, sodium chloride 1.3 per cent, and calcium carbonate 2.7 per cent. Sobee is used as a substitute in the diet of infants who are sensitive to the proteins of milk. Mead Johnson & Co., Evansville, Ind. (Jour. A. M. A., September 28, 1929, p. 989.)

**CALCIUM GLUCONATE**—Sandoz.—It contains calcium equivalent to not less than 12.40 or more than 12.80 per cent of calcium oxide. Calcium Gluconate—Sandoz is used to obtain the therapeutic effects of calcium. It is more palatable than calcium chloride and for hypodermic or intramuscular use is nonirritant. It is supplied in the form of a powder and in ampules containing 10 cc. of a ten per cent stabilized supersaturated solution. Sandoz Chemical Works, Inc., New York.

**ACNE BACILLUS VACCINE.**—An acne bacillus vaccine (New and Nonofficial Remedies, 1929, p. 369) marketed in packages of one 5 cc. vial, and in packages of one 20 cc. vial. Hollister-Stier Laboratories, Spokane, Wash.

**PERTUSSIS BACILLUS VACCINE.**—A pertussis bacillus vaccine (New and Nonofficial Remedies, 1929, p. 371) composed of several strains of pertussis bacilli, marketed in packages of one 5 cc. vial, and in packages of one 20 cc. vial. Hollister-Stier Laboratories, Spokane, Wash.

**STAPHYLOCOCCUS VACCINE (Aureus and Albus).**—A staphylococcus vaccine (New and Nonofficial Remedies, 1929, p. 375) prepared from *staphylococcus aureus* and *albus* in equal proportions, and marketed in packages of one 5 cc. vial and in packages of one 20 cc. ampule. Hollister-Stier Laboratories, Spokane, Wash.

**TYPHOID-PARATYPHOID VACCINE (Prophylactic).**—A typhoid vaccine (New and Nonofficial Remedies, 1929, p. 378) consisting of a suspension of killed typhoid, paratyphoid A, and paratyphoid B bacilli. It is marketed in packages of one 5 cc. vial and in packages of one 20 cc. vial. Hollister-Stier Laboratories, Spokane, Wash. (Jour. A. M. A., October 5, 1929, p. 1065.)

**ATOQUINOL**—Ciba.—The allyl ester of 2-phenylquinolin-4-carboxylic acid. The actions and uses of Atoquinol—Ciba are practically like those of cinchophen. It is supplied in the form of tablets 0.25 Gm. (4 grains). Ciba Co., Inc., New York. (Jour. A. M. A., October 19, 1929, p. 1223.)

**CHINIOFON.**—Sodium-iodoxyquinolinesulphonate.—A mixture prepared from approximately four parts of 7-iodo-8-hydroxy-quinoline-5-sulphonic acid, containing not less than 26.5 per cent of combined iodine, and 1 part of sodium bicarbonate. Chiniofon, which is closely similar to preparations, introduced under various proprietary names as wound antiseptics, has been found to be of use in the treatment of amebic dysentery.

**BACILLUS ACIDOPHILUS CULTURE**—Hollister-Stier.—A pure culture of *B. acidophilus* which contains not less than 150 million viable organisms (*B. acidophilus*) per cc. at the time of issue. For a discussion of the actions, uses and dosage of bacillus acidophilus preparations see Lactic Acid-Producing Organisms and Preparations, New and Nonofficial Remedies, 1929, p. 220. Hollister-Stier Laboratories, Spokane, Wash. (Jour. A. M. A., October 26, 1929, p. 1309.)

**GELATIN COMPOUND PHENOLIZED**—Mulford.—A mixture composed of gelatin, zinc oxide, glycerin, and water, containing 1.5 per cent of phenol. It is used in the preparation of bandages to cover chronic ulcers, unhealed secondary burns and the prepara-

tion of pressure bandages for varicose veins when surgical treatment is not necessary. H. K. Mulford Co., Philadelphia.

**DIPHTHERIA TOXOID**—Mulford, 30 cc. vial.—Diphtheria Toxoid—Mulford (New and Nonofficial Remedies, 1929, p. 369) is also marketed in packages of one 30 cc. vial. H. K. Mulford Co., Philadelphia.

**TYPHOID-PARATYPHOID PROPHYLACTIC, HOSPITAL PACKAGES.**—Typhoid paratyphoid prophylactic (New and Nonofficial Remedies, 1929, p. 379) is also marketed in hospital size packages containing ten complete immunizations. The Cutter Laboratory, Berkeley, Calif.

**AMPOULE SOLUTION SILVER NITRATE 1 PER CENT.**—Cutter.—Solution silver nitrate 1 per cent, approximately 0.2 cc., contained in ampules composed of beeswax. They are used for the prevention of ophthalmia neonatorum. Cutter Laboratory, Berkeley, Calif.

**MERTHIOLATE.**—Sodium Ethylmercuri Thiosalicylate.—Merthiolate contains from 49.15 to 49.65 per cent of mercury in organic combination. Merthiolate is a potent germicide for spore-bearing and non-spore-bearing bacteria. It is used for sterilizing tissue surfaces. It does not precipitate with serum proteins. Merthiolate is much less toxic than mercuric chloride. Merthiolate is supplied in the form of merthiolate solution 1:1,000, containing 1 gram of merthiolate in 1,000 cc. of water, buffered with 1.4 Gm. of sodium borate in 1,000 cc. and containing sodium chloride to make the solution approximately isotonic. Eli Lilly & Co., Indianapolis. (Jour. A. M. A., December 7, 1929, p. 1809.)

**POLYANAEROBIC ANTITOXIN.**—An anaerobic antitoxin (New and Nonofficial Remedies, 1929, p. 346) prepared by immunizing horses with the toxins of *B. tetani*, *B. Welchii*, *Vibrio septique* and *B. oedematiens*. It is marketed in bottles containing 100 cc., each 100 cc. containing at least 5,000 units of tetanus antitoxin, 75 units of Welch bacillus antitoxin, and sufficient antitoxin to neutralize 50,000 minimum lethal doses of *Vibrio septique* toxin and 100,000 minimum lethal doses of *B. oedematiens* toxin. Cutter Laboratory, Berkeley, Calif.

**NORMAL HORSE SERUM WITHOUT PRESERVATIVE.**—A normal horse serum (New and Nonofficial Remedies, 1929, p. 344) marketed in packages of one vial containing 100 cc. H. K. Mulford Co., Philadelphia.

**POLLEN EXTRACTS**—Mulford.—The following pollen extracts—Mulford (New and Nonofficial Remedies, 1929, p. 33) have been accepted: Alder Pollen Extract—Mulford; Alfalfa Pollen Extract—Mulford; Annual Sage Pollen Extract—Mulford; Apple Pollen Extract—Mulford; Aster Pollen Extract—Mulford; Blue Beech Pollen Extract—Mulford; Boneset Pollen Extract—Mulford; Brown Grass Pollen Extract—Mulford; Burning Bush Pollen Extract—Mulford; Burweed Marsh Elder Pollen Extract—Mulford; Buttercup Pollen Extract—Mulford; California Mugwort Pollen Extract—Mulford; Careless Weed Pollen Extract—Mulford; Cedar Tree Pollen Extract—Mulford; Clover Pollen Extract—Mulford; Crab Grass Pollen Extract—Mulford; Dahlia Pollen Extract—Mulford; Dragon Sage Pollen Extract—Mulford; Elm Tree Pollen Extract—Mulford; English Plantain Pollen Extract—Mulford; Fescue Pollen Extract—Mulford; Golden Glow Pollen Extract—Mulford; Hickory Tree Pollen Extract—Mulford; Milo Maize Pollen Extract—Mulford; Mock Orange Pollen Extract—Mulford; Oat Pollen Extract—Mulford; Olive Pollen Extract—Mulford; Pecan Tree Pollen Extract—Mulford; Pine Tree Pollen Extract—Mul-

ford; Poverty Weed Pollen Extract—Mulford; Prairie Grass Pollen Extract—Mulford; Privet Pollen Extract—Mulford; Quack Grass Pollen Extract—Mulford; Rabbitt Brush Pollen Extract—Mulford; Rose Pollen Extract—Mulford; Salt Bush Pollen Extract—Mulford; Shad Scale Pollen Extract—Mulford; Sheep Sorrel Pollen Extract—Mulford; Slender Ragweed Pollen Extract—Mulford; Spring Amaranth Pollen Extract—Mulford; Sudan Grass Pollen Extract—Mulford; Velvet Grass Pollen Extract—Mulford; Western Giant Ragweed Pollen Extract—Mulford; Wheat Pollen Extract—Mulford; Wild Oats Pollen Extract—Mulford; Willow Tree Pollen Extract—Mulford; Winter Grass Pollen Extract—Mulford; Yellow Foxtail Grass Pollen Extract—Mulford. These pollen extracts are marketed in 5 cc. vials containing 500 units per cc. H. K. Mulford Co., Philadelphia.

**THOMPSON'S MALTOSE AND DEXTRIN.**—A Mixture containing maltose, 51 per cent; dextrans, 45 per cent; sodium chloride, 2 per cent; and moisture 2 per cent. On the claim that maltose is more readily assimilated than other forms of sugar, Thompson's maltose and dextrin is proposed to supplement the carbohydrate of cow's milk or of water modifications of cow's milk. Thompson's Malted Milk Co., Inc., Waukesha, Wis. (Jour. A. M. A., December 21, 1929, p. 1971.)

**DIGITOS AMPULES,** 5 cc.—Each ampule contains digitos (New and Nonofficial Remedies, 1929, p. 138) 5 cc. H. K. Mulford Co., Philadelphia.

**LUMINAL CAPSULES,** 1½ grains.—Each capsule contains luminal (New and Nonofficial Remedies, 1929, p. 81) 1½ grains. Winthrop Chemical Co., Inc., New York.

**METAPHEN 2,500.**—It contains 1 part metaphen (New and Nonofficial Remedies, 1929, p. 272) dissolved in 2,500 parts of water containing 0.33 per cent each of sodium bicarbonate and sodium carbonate. Abbott Laboratories, North Chicago.

**DIPHTHERIA TOXOID**—Squibb.—This diphtheria toxoid (New and Nonofficial Remedies, 1929, p. 368) is also marketed in packages of one 30 cc. vial. E. R. Squibb & Sons, New York. (Jour. A. M. A., November 9, 1929, p. 1471.)

**DIPHTHERIA TOXOID**—Cutter.—Diphtheria toxoid (New and Nonofficial Remedies, 1929, p. 368) prepared from diphtheria toxin whose L+ dose is 0.2 cc. or less by treatment with 0.3 to 0.4 per cent formaldehyde. It is tested for antigenic potency by injection into guinea pigs. It is marketed in packages of one immunization treatment of three 1 cc. vials; in packages of ten immunization treatments of thirty 1 cc. vials; also in packages of one 30 cc. ampule. Cutter Laboratory, Berkeley, Calif. (Jour. A. M. A., November 16, 1929, p. 1559.)

**SOLUTION OF INVERT SUGAR**—Lilly.—A solution of a mixture of dextrose and levulose, obtained by the inversion of sucrose. Solution of invert sugar—Lilly is used in the injection treatment of varicose veins. It is claimed that the use of sugar solutions such as solutions of dextrose or of invert sugar have the advantage over solutions of sodium chloride, sodium salicylate or mercuric chloride in that they do not cause severe cramps or sloughing if accidentally injected outside the veins. Solution of invert sugar—Lilly is marketed in ampules containing 5 Gm., 6 Gm., and 7.5 Gm., respectively, in 10 cc. Eli Lilly & Co., Indianapolis.

**SULPHARSPHENAMINE**—De Pree, 0.5 Gm. Ampules.—Each ampule contains sulpharsphenamine—De Pree (New and Nonofficial Remedies, 1929, p. 71) 0.5 Gm. De Pree Chemical Co., Holland, Mich.

**SULPHARSPHENAMINE**—De Pree, 0.9 Gm. Ampules.—Each ampule contains sulpharsphenamine—De Pree (New and Nonofficial Remedies, 1929, p. 71) 0.9 Gm. De Pree Chemical Co., Holland, Mich. (Jour. A. M. A., November 23, 1929, p. 1649.)

**A CANCER QUACK QUILTS.**—The Indianapolis Cancer Hospital, long a disgrace not only to the state of Indiana but also to the Middle West, has closed its doors, and a receiver was appointed for the outfit by the circuit court. Charles C. Root, M.D., the medical director of the concern, is reported to have disappeared. The outfit was originally known as the Parkview Sanatorium and later called the Leach Sanatorium. The closing of the hospital has been brought about by the activity of the Indianapolis Better Business Bureau and its manager, Mr. T. M. Overley; they collected evidence which permitted the investigation. Specimens of what quack Root called his "Liquid Laboratory Product" which was said to be injected into the cancer, was examined in the A. M. A. Chemical Laboratory and found to contain zinc chloride as its essential drug. (Jour. A. M. A., August 17, 1929, p. 564.)

**MEDICAL TREATMENT OF CATARACT.**—About every five years, the ophthalmic world is thrilled by the announcement of a new medical cure for senile cataract. This has been going on for at least two hundred years. Boric acid and glycerin, ethylmorphine hydrochloride, subconjunctival injections of mercuric cyanide, radium, antigenic injections of lens proteins, mixed endocrine glands, sodium iodide in all possible combinations, and so on have all had a trial. Not one of them has been scientifically established as of value and more cataracts are being operated on than ever before. (Jour. A. M. A., December 14, 1929, p. 1910.)

## PROPAGANDA FOR REFORM

**BLOOD SUGAR TESTING OUTFITS.**—The various blood sugar testing outfits on the market are, for the most part, satisfactory for clinical work, especially when one wishes to follow the blood sugar values from time to time. None of these instruments is as reliable as the special methods advanced in the literature, but most of them are based on the principles of these tests, so that the difference is largely one of degree of accuracy of the results. If one uses the same instrument or method on different specimens of the patient's blood, whatever error there may be in the outfit or method employed is introduced at each testing, so that the results obtained are comparable. It is hard to see how the Sheftel sugar test can yield anything more than a rough estimate of the sugar contents. The claim of a percentage of error of less than 0.1 per cent is so ridiculous as to throw discredit on the originators. (Jour. A. M. A., August 3, 1929, p. 403.)

**THE ACTION OF DIGITALIS IN HEART FAILURE.**—Clinicians have generally accepted the pharmacologic evidence that digitalis causes a more vigorous and larger ventricular contraction. But it is difficult to accept the view that a muscle such as the heart, which cannot rest after being overstimulated, is improved by being forced to beat harder. It has now been shown that the efficiency of the heart, or its capacity for doing a fixed amount of work with least oxygen consumption, varies inversely with its diastolic volume. It was shown further that digitalis causes the heart to decrease its diastolic volume while carrying a constant load. Thus, digitalis reduces the energy requirement of the heart or permits it to do more work with the same expenditure of energy. (Jour. A. M. A., August 17, 1929, p. 548.)



## BOOK REVIEWS

**DISEASES OF THE CHEST AND THE PRINCIPLES OF PHYSICAL DIAGNOSIS.** By George W. Norris, M.D., Professor of Clinical Medicine in the University of Pennsylvania, and Henry R. M. Landis, M.D., Professor of Clinical Medicine, University of Pennsylvania; Director of the Clinical and Sociological Departments of the Henry Phipps Institute of the University of Pennsylvania; with a chapter on the Transmission of Sounds Through the Chest, by Charles M. Montgomery, M.D., and a chapter on the Electrocardiograph in Heart Disease, by Edward Krumbhaar, Ph.D., M.D. Fourth edition, revised. 954 pages with 478 illustrations. Philadelphia and London: W. B. Saunders Company, 1929. Price \$10.00.

It is refreshing to find a book that emphasizes the fundamental importance of knowledge and skill in physical diagnosis. This treatise admits the great strides made by laboratory procedures but rightfully places the procedures in the position of secondary aids to diagnosis,—valuable if utilized as one of the factors in arriving at a conclusion, dangerous and misleading if relied upon for a complete or a deciding diagnosis.

The present edition has been amplified by a very satisfying chapter by Edward B. Krumbhaar, on the value and the interpretation of the electrocardiogram, and one on the physics of the transmission of sounds through the chest by Charles M. Montgomery.

It is interesting to note that much needed consideration is given to the reflex symptoms produced in the chest by nasal conditions, such as mild or obscure nasal sinus infections. To point out only one other instance of the broad interests of the writers, the recent differentiation between angina pectoris and coronary artery occlusion may be mentioned.

The work is profusely and well illustrated. As a whole it should be a most satisfactory volume to the clinician.

W. B.

**AN INTRODUCTION TO THE STUDY OF PHYSIC.** [Now for the first time published.] By William Heberden [1710-1801]. A Prefatory Essay by Leroy Crummer. With a Reprint of Heberden's *Some Account of a Disorder of the Breast*. New York: Paul B. Hoeber, Inc. 1929. Price \$2.00.

The Prefatory Essay begins with an interesting description of the discovery of an unpublished manuscript in a south London second-hand book shop. Similar incidents can be recalled by many book lovers who enjoy browsing around in search of "nuggets." Then we find a number of helpful biographical side lights of William Heberden and also a complete Heberden bibliography.

The second part comprises the first publication of "An Introduction to the Study of Physic." Before the establishment of graded courses such works were of more service than they are at present. In those days the studies were mostly elective and the student frequently attended a half dozen different medical schools to obtain his medical education.

Heberden's recommendations for reading and study comprise, among others, practically all the epoch-making works published up to his time and this list is for us a guide to some of the most important contributions to medical history.

The little volume ends with a reprint of Heberden's "Some Account of a Disorder of the Breast,"

read at the Royal College of Physicians, July 21, 1768. This was the first and original report of angina pectoris, which name was also given to that disease by William Heberden.

The book is certainly of great value to a medical man who has learned to appreciate the former masters in the science and who is receptive to such form of inspiration.

R. E. S.

**THE NORMAL AND PATHOLOGICAL PHYSIOLOGY OF BONE.** Its Problems. By R. Leriche, Professor de Clinique Chirurgicale a la Faculté de Strasbourg, and A. Policard, Professor d'Histologie a la Faculté de Lyon. Authorized English Translation by Sherwood Moore, M.D., Professor of Radiology, Washington University School of Medicine, and J. Albert Key, M.D., Assistant Professor of Clinical Orthopedic Surgery, Washington University School of Medicine. Cloth, 236 pages. Illustrated. St. Louis: The C. V. Mosby Company. 1928. Price \$5.00.

This book is one of very great interest. Not only to orthopedic surgeons and radiologists should it appeal but to all general surgeons and even general internists.

The style is very vivacious and the progress of the unfolding of the argument holds the reader's attention closely. The French authors have tried by clinical, experimental and histological means (one is professor of clinical surgery and one professor of histology) to decide the question of bone growth and replacement. Their view is broadly philosophic and is based on the assumption that all connective tissue in the bone is essentially similar in reactive characteristics. Bone is formed in cartilage not by metaplasia of the cartilage cells but by resorption of the cartilage, replacement of its cells by connective tissue cells and the neoplasia into bone. Osteoblasts are not considered of great importance in the process of bone formation.

The book must be read in detail in order to follow their ideas. The reviewer is not in a position to discuss the work critically, but he can testify to the extreme pleasure he experienced in reading a most fascinating book.

L. C.

**THE NUTRITION OF HEALTHY AND SICK INFANTS AND CHILDREN.** By E. Nobel, Professor of the University and First Assistant; C. Pirquet, Late Professor of the University and Director; R. Wagner, Associate Professor and Second Assistant; of the Children's Hospital of Vienna. Second Revised Edition with 78 illustrations (Including Charts) and 6 Tables. Authorized Translation by Benjamin M. Gasul, B.S., M.D., Consulting Pediatricist at the Municipal Tuberculosis Sanitarium of Chicago. Philadelphia: F. A. Davis Company. 1929. Price \$3.50.

The first part of the book introduces Pirquet's system of feeding, using the unit value of milk rather than the calorie as the standard for measuring nutrition. The sitting height of the child is used for calculating the nutritional requirements. This system is not new to pediatricians who have known Pirquet, or have read his writings or criticisms thereof in America; but one must learn some new terms original with Pirquet if he is to use this method of calculating food for children.

The second part, making up the bulk of the volume, deals with the nutrition of the child in health and in disease, especially in gastro-intestinal, metabolic, infectious and renal conditions. The

book concludes with several pages of diet forms and recipes.

There is much information in the book and it will interest the student, especially if he wishes to become acquainted with a method which is much different from any in use in this country. Pirquet's theories will be read and studied for many years.

**THE SURGICAL CLINICS OF NORTH AMERICA.** (Issued serially, one number every other month.) Volume 9, number 6. (Lahey Clinic Number—December 1929) 188 pages with 51 illustrations, and complete index to volume 9. Per Clinic year (February 1929 to December 1929.) Philadelphia and London: W. B. Saunders Company. Price, paper \$12.00; cloth \$16.00.

This number contains contributions from the Lahey Clinic, Boston. There are contributions on general surgical topics, anesthesia, gastro-enterology, medicine, orthopedics, urology and ear, nose and throat.

The book contains 188 pages with 51 illustrations and a complete index to volume 9.

**INDUSTRIAL POISONS IN THE UNITED STATES.** By Alice Hamilton, A.M., M.D., Assistant Professor of Industrial Medicine, Harvard Medical School, Boston, Mass.; Formerly Special Investigator of Poisonous Industries for the U. S. Bureau of Labor Statistics. New York: The Macmillan Company. 1929. Price \$5.00.

This book, which first appeared in 1925 and is now reprinted, is in a class by itself. It has no competition. Dr. Hamilton has studied personally and collected from the literature, up to January, 1924, all that was then known about industrial toxicology. Industry has progressed so far in the last five years and under such changing conditions for the worker, and brought so many new problems into this field that a new revised edition would be welcome. This is especially important since Dr. Hamilton's book is quoted and accepted as an authoritative guide for courts in medicolegal cases involving questions of industrial toxicology. R. L. T.

**THE BLOOD PICTURE. And Its Clinical Significance (Including Tropical Diseases).** A Guidebook on the Microscopy of Blood. By Professor Dr. Victor Schilling, Physician-in-Chief, The First Medical University Clinic, Charité, Berlin. Translated and edited by R. B. H. Gradwohl, M.D., Director of the Pasteur Institute of St. Louis, and the Gradwohl School of Laboratory Technique, St. Louis, Mo.; Lieutenant-Commander, Medical Corps (Fleet), United States Naval Reserve. Seventh and Eighth Revised Edition. With 44 illustrations and 4 color plates. St. Louis: The C. V. Mosby Company. 1929. Price \$10.00.

The so-called Schilling differential blood count, while based on the studies of Arneth, is simpler and more readily applicable than the Arneth method.

Arneth divided neutrophilic polynuclear leukocytes into five groups in accordance with the number of lobes found in the nuclei. He studied the influence of infectious diseases upon these cells and noted a relative increase of cells with fewer lobes in their nuclei. This shift was found at times to be somewhat characteristic of certain diseases and served, furthermore, to indicate improvement or augmentation in severity of a given infection. At the same

time Arneth took full cognizance of changes in percentages of other types of white blood cells.

Schilling arranged his classification across the page from left to right as follows: Basophils, eosinophils, myelocytes. Juvenile (young neutrophilic unsegmented nuclei), stabs (old neutrophilic unsegmented nuclei), neutrophilic polynuclear cells with segmented nuclei. Lymphocytes and mononuclear cells. These he abbreviated as B, E, M, J, St, S, L (segmented) and Mon. The translator retained the German work "stab," meaning staff, to represent polynuclear cells with unsegmented nuclei, very often resembling a shepherd's staff.

With infection the stabs are increased, the juvenile cells make their appearance in the circulation, and Schilling speaks of a shift to the left of the relative percentage of cells.

The book covers the subject of hematology rather completely. It covers technic, as corpuscle counting, staining, examination of the films for parasites, sedimentation tests, blood grouping and technic of transfusion, technic of splenic puncture, and bilirubin tests of serum. While this contributes materially to the length of the book the chapters are full of current information.

There are 154 pages devoted to "Theory, Morphology and Division of the Blood Picture." Despite the importance of this chapter one becomes weary from reading it closely on account of the long germanic type of sentences. On the other hand, the chapter on technic is conspicuously free from superfluous words and phrases.

Schilling estimates that his differential blood counting method is of value, "(a) to determine infectious processes; (b) to estimate the latent continuance of apparently healed infections or danger of relapse; (c) to outline as relatively harmless acute illnesses or exacerbations of severe conditions which have been reactivated."

He has studied a large series of cases showing a great variety of diseased conditions and has formulated many charts in the closing chapters that are invaluable to practitioners of this method.

Schilling by no means considers his method to be a diagnostic panacea. He says: "To judge the blood picture one must have (1) the red blood picture, (2) differential count (Schilling), (3) the total WBC, RBC, and color index . . . The blood picture must always be observed together with complete clinical findings."

The book is rich in bibliography which is undeniably creditable to the modern text and evidences the familiarity of the author with the subject.

The book is a valuable reference and guide in hematology. It does require, however, considerable application to follow in detail its fullest message in order to interpret the blood count properly by the Schilling method. It has, nevertheless, reduced the Arneth count to a workable basis of practical importance. H. H. B.

**AEQUANIMITAS. With Other Addresses to Medical Students, Nurses and Practitioners of Medicine.** By Sir William Osler, Bt., Md., F.R.S., Late Regius Professor of Medicine, Oxford; Honorary Professor of Medicine, Johns Hopkins University. Second Edition, with three additional addresses. Eighth impression. Philadelphia: P. Blakiston's Son & Company.

It would appear that the first of this series of addresses, which likewise yields title to the series, was delivered in 1889 and that the last, "L'Envoi," was spoken in 1905. The series is thus seen to be essentially of American American, for it was completed



before this distinguished colleague donned the gown of Oxford and brought additional honor to the ivied fane of Minerva beside the somnolent Isis.

Three valedictory addresses have been added to the earlier list which brings the present total to twenty-two. The entire series is graced by the verbiage of one who knew his virile English well, and is enriched by the matured discrimination of one who knew both the best thoughts and the best writings of ancient and modern days.

The underlying strain throughout is Medicine and all that is closely cognate to the altruistic Guild of Healing. His auditors ranged from students to librarians, from nurses to university faculties.

It is of interest that the current is likewise the eleventh impression; but of greater interest is it that the current is likewise the fifth impression since the World War; for it is beyond question that matters thoughtful and matters cultural have not been widely held in high esteem since that devastating cosmic conflict. As herein noted, this series is essentially of Osler's American days; as such there is not a fragment to be found of the rich life and of the abundant experiences that he enjoyed and to which he contributed so lavishly while in England. Many notable gatherings and many significant occasions were made alike more notable and more significant by his engaging and dominating participation. It will be both a sad and a needless loss if these later addresses, wrought in the full maturity of his days, be permitted to remain scattered and foredoomed to oblivion. To obviate this it would be the counsel of wisdom if the publishers, not daunted by the recent untimely passing of Lady Grace, make satisfactory arrangement with remaining members of Sir William's family to the end that, at an early date, a third edition be issued which shall include not only the current American series but in addition all the more significant addresses subsequent thereto delivered by this distinguished colleague.

N. W. S.

**LABORATORY TECHNIQUE.** The Methods Employed at St. Luke's Hospital, New York. By F. C. Wood, Karl Vogel and L. W. Famulener. Third edition revised and enlarged. New York: James T. Dougherty.

The first edition of this manual appeared in paper cover about ten years ago and has proved a handy book for the laboratory worker. This edition discards all obsolete and little used procedures and adds new methods and modifications of old ones that have been generally accepted.

The usual fields of histology, bacteriology, serology, clinical pathology and blood chemistry are covered. Specific directions are given for all tests and no space is wasted on illustrations. For a simple working manual of technic it is of value to the laboratory technician.

R. L. T.

**THE NEWER KNOWLEDGE OF NUTRITION.** The Use of Foods for the Preservation of Vitality and Health. By E. V. McCollum, Ph.D., Sc.D., Professor of Chemical Hygiene in the School of Hygiene and Health, of the Johns Hopkins University, Baltimore, Md., and Nina Simmonds, Sc.D. (Hygiene) Formerly Associate Professor of Chemical Hygiene in the School of Hygiene and Public Health, of the John Hopkins University, Baltimore, Md. Illustrated. Fourth edition, rewritten. New York: The Macmillan Company. 1929. Price \$5.00.

No one interested in internal medicine, dietetics

or the science of nutrition can do without a copy of a late edition of this book. It is the standard work on the biological properties of food. The book is written by authors who themselves did some of the earliest experiments and who have worked intensely in this field up to the present development of the subject. The authors have mentioned all the outstanding work of the other men.

W. H. O.

**CLINICAL MEDICINE FOR NURSES.** By Paul H. Ringer, M.D., Formerly Chief of Medical Service of the Asheville Mission Hospital, Asheville, N. C.; and on staff of Biltmore Hospital, Biltmore, N. C. Illustrated. Third revised edition. Philadelphia: F. A. Davis Company. 1929. Price \$3.00 net.

What viewpoint the reviewer assumes as to the function of a nurses' textbook must decide what one would say in the criticism of a book for nurses. Thus, if one expects the nurse to have all the instructions that a physician had a generation ago, one type of book would be suitable. But it would be another type of book if one expected the nurse to know only the rudiments of her work. A third type would be one in which the nurse would be trained in the broad principles of medicine.

Dr. Ringer would probably expect his nurses to be equal to carrying out the technical examinations of the hospital, or at least understand them, for the book is filled with fundamental statements needed for the carrying out of diagnostic tests. Therefore in a training school preparing nurses for hospital work this book would be excellent.

The statements are succinct and adequate. The range of subjects while not complete, comprises those most needed for undergraduate nurses.

G. H. H.

**GOULD'S MEDICAL DICTIONARY.** Based on Recent Medical Literature. By George M. Gould, A.M., M.D. Containing all the words and phrases generally used in medicine and the allied sciences, with their proper pronunciation, derivation, and definition. Edited by R. J. E. Scott, M.A., B.C.L., M.D., Fellow of the New York Academy of Medicine, Editor of "Witthaus' Text-Book of Chemistry," etc. Second Edition Revised and Enlarged. With illustrations and one hundred and seventy tables. Including a new table of Micro-Organisms, comprising sixty eight pages, by D. H. Bergey, M.D., Professor of Hygiene and Bacteriology, University of Pennsylvania. Philadelphia: P. Blakiston's Son & Co., 1012 Walnut Street.

The brilliant George M. Gould enriched medicine by his high idealism, his scientific achievements and his scholarly endeavors, whether as ophthalmologist, historiographer, or lexicographer. It is quite possible that in the latter role he will be most generally appreciated, for his fine initial effort fathered a subsequent brood that has proved both helpful and valuable.

This latest issue (not in any sense supplanting his monumental Illustrated Dictionary of Medicine, Biology, and Allied Sciences) will, by many, doubtless be considered the most useful. It is not heavy in weight, has flexible bindings, excellent paper and print, is not padded with illustrations, and is increased by 125 pages with a total of over 83,000 defined words.

Dr. R. J. E. Scott, as editor, admirably carries forward the lofty ideals and the productive plans of Gould. This dictionary is commended as a useful addition to the library of every physician.

N. W. S.

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### ORIGINAL ARTICLES

#### AN ADDRESS ON THE OCCASION OF THE 80TH BIRTHDAY OF DR. WILLIAM H. WELCH\*

ERNEST SACHS, M.D.

ST. LOUIS

Your program committee has asked me, a former pupil of Dr. Welch, to say a few words about him tonight when all over the world meetings are being held to do him honor on this, his eightieth birthday.

The fact that the President of the United States is taking part in celebrating the birthday of a private citizen, this citizen of the world, is evidence of Dr. Welch's great eminence. In addition to the great celebration in Washington today, similar ones are taking place in London, Berlin, Paris, Tokio and Pekin; and in this country in Baltimore, New York, New Haven and Cincinnati. As far as I know, no American physician has ever been so honored.

What has Dr. Welch done to deserve such honors?

Dr. Welch has attained a unique position in American medicine because of his many valuable contributions which have advanced medicine in this country. He has been preeminent as a teacher, as an investigator, and as an administrator. But in addition to this, his lovable character, his generosity and kindness toward all who ever came in contact with him, have endeared him to all. For that reason he is always referred to by his former students as "Popsy Welch."

Dr. Welch's career has been a striking example of how industry and steadfast adherence to one's ideals bring a man to the forefront of his profession. He began his pathological studies while an intern at Bellevue Hospital in 1874. He continued these studies in Europe from 1875 to 1878. While there, he studied under the great founders and leaders of mod-

ern pathology and histology,—von Recklinghausen, Waldeyer, Ludwig, Koch and Cohnheim. At the end of that time he returned to America, a marked man. Between 1878 and 1884 he first displayed his skill as a teacher. During those years at Bellevue Medical College he made his reputation as one of the future leaders of modern pathological thought in America.

When that remarkable man, Daniel Coyt Gilman, began to select his new faculty for Johns Hopkins University he picked out Dr. Welch as the man to help him develop a medical school which was to set new standards. Dr. Welch was the unanimous choice for this position. The men with whom Dr. Welch had studied abroad as well as all whom Dr. Gilman consulted in this country, recommended Dr. Welch as the one man preeminently fitted to head the pathological department which was to be the corner stone of the new medical school. Shortly thereafter, those other three eminent men, Osler, Halsted and Kelly, were asked to join Dr. Welch. These four men, immortalized in that great painting of Sargent's, started out together to build the great medical school in Baltimore.

It was my good fortune to be a student at Hopkins when these four men were at the height of their power. Those were unforgettable days. To see Welch, Osler and Halsted in animated discussion at one of the Monday night medical meetings was an occasion long to be remembered. It was on an occasion like this that the clear, logical reasoning, the incisive thinking, and the profound knowledge of Dr. Welch could be observed at their best. Though always courteous and generous, Dr. Welch never hesitated to express his opinion forcefully. How well I remember a certain evening when an enthusiastic gentleman from Boston came down to Baltimore and condemned the routine urine examination which Dr. Osler and his clinical pathologist had been trying to make students carry out. It seemed for a moment as if all their work were to be undone. But Dr. Welch, with his usual clear-

\* Delivered at the meeting of the St. Louis Medical Society, April 8, 1930.





DR. WILLIAM H. WELCH

sightedness and incisiveness, yet with that irresistible smile on his lips, flayed the Boston gentleman alive. But he did it so charmingly that I am sure the gentleman in question enjoyed his flaying. During those years, Dr. Welch made his influence felt along other lines than pathology. From the first, he was greatly interested in public health work and, as president of the Maryland Board of Health, finally succeeded in introducing a modern sanitary system in Baltimore.

During these years, however, in spite of his many activities in various fields, he kept up his teaching of pathology. In presenting a subject clearly and giving a logical survey of a subject, he was a master. His lectures on diseases of the kidney or on thrombosis and embolism, the subject about which he had written such an important monograph, were wonderful to hear.

I had the good fortune to see Dr. Welch do

an autopsy, a very different affair I can assure you from the bungling clumsy affairs one too frequently sees.

In the past twenty-five years, Dr. Welch's interests and influence have been felt in other fields of medicine. In 1910 he was elected president of the American Medical Association. This event was celebrated with a memorable dinner in Baltimore, attended by many of his students who loved and admired him. The bronze plaque of Dr. Welch, which I have laid out on the table, was made for that occasion. Since that time one honor after another has been heaped upon him and all of these he has accepted with a modesty and simplicity that in itself is a mark of greatness.

His advice has been sought all over this country by countless institutions and as a result he has done more to advance medical education than any man alive or dead. He has

been fearless in recommending entirely new methods in education. He first proposed the so-called full-time system and advised that it be given a fair trial to see if it might not be a way of correcting evils that had crept into some American medical schools. But while others have claimed this was the only solution for these evils Dr. Welch has kept an open mind on the question and has maintained a judicial attitude. This open-mindedness has characterized all his actions and accounts for the confidence that men of all shades of opinion have had in his views. Here in St. Louis, both St. Louis University and Washington University have had the benefit of his advice and wise counsel.

During the war, Dr. Welch did most valuable work in Washington and since then helped to found the first School of Hygiene and Public Health in the world. As its first director he outlined the broad plans which have since been followed. He resigned this post at the age of seventy-six.

But not content to rest on his laurels, he has devoted the years since then to the development of the Johns Hopkins Institute of the History of Medicine, the first institution of the kind to be created in this country. In spite of his advanced age, he traveled over Europe collecting treasures for this most recent undertaking of his. When the Institute was opened, the new library was fittingly named for him, the William H. Welch Medical Library, and he became its first professor of the history of medicine.

Dr. Welch has been honored by countless scientific societies; he has left his lasting impression on American medicine and American education. For these things, as well as his true nobility of character, medical men all over the world are today gathered to do him honor.

May I suggest in closing, Mr. President, that the St. Louis Medical Society honor itself by sending Dr. William H. Welch birthday greetings.

University Club Bldg.

## HEMOPTYSIS IN MITRAL STENOSIS

WITH REPORT OF TWO CASES: ONE WITH FATAL  
HEMORRHAGE\*

A. MORRIS GINSBERG, M.D.

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Mechanics has invaded the field of medicine just as it has invaded industry. The younger men today are depending too much upon mechanical means for their diagnosis. It is time

to call a halt on such a condition. We must begin to swing back the pendulum to the side which made the old masters geniuses of diagnosis and allowed them to blaze a trail into the unknown and return victorious with knowledge of physiology, pathology and therapeutics. I do not for one moment desire to discard the newer methods of diagnostic precision but I plead for a return to the old school where history taking, the sense of touch, smell, observation, and the power of deduction were primary and laboratory and mechanical means secondary in the art of diagnosis. It is a scientific fact that atrophy comes from disuse and, truly, we are today being threatened with atrophy of brain tissue; that is, if we continue to allow the laboratory to do our thinking.

The old masters could evaluate symptoms correctly and arrive at a logical conclusion. They paid attention to details. Do we? What does hemoptysis or, literally speaking, "blood-spitting," call to our attention? Shall we have the X-ray man make a diagnosis for us and perhaps interpret a hilus tuberculosis as a cardiac stasis? Or shall we rule out tuberculosis because the laboratory reports the absence of tubercle bacilli? Certainly not. We must keep in mind the many diseases which might cause hemoptysis.

In the foreground should stand tuberculosis and the dictum laid down by specialists in tuberculosis, that the spitting of a drachm of blood should be regarded as probable evidence of tuberculosis, is to be remembered. Next in line come the cardiac diseases, with or without decompensation, the main offender being mitral stenosis. Only recently has there been an increase in the American literature of reported cases of malignancies of the bronchi and lung tissue which places this group close to the top of the diseases causing hemoptysis.

In the respiratory tract, ruling out the gums and nasopharynx as possible offenders, we must consider the pneumonias, especially the fatal influenzal types, abscesses, gangrene, infarcts, plastic fibrinous bronchitis, ulcers or papillomas of the larynx, ulcers of the trachea and bronchi, bronchiectasis, echinococcic cysts, and syphilis.

A careful diagnosis might reveal the hemoptysis as associated with the blood dyscrasias, hemophilia, leukemia, essential thrombopenia and the essential purpuras. Also, we should keep in mind the acute and chronic infections associated with purpura caused by septicemia, typhus, malignant endocarditis, smallpox, scarlet fever and measles.

Scurvy, vicarious menstruation, parasitic diseases, whooping cough and typhoid should be considered.

The writer was surprised at the paucity of

\*Read at the 72nd Annual Meeting of the Missouri State Medical Association, Springfield, May 13-16, 1929.

Note. I am indebted to the Departments of Roentgenology and Pathology of the Kansas City General Hospital for their reports.



literature regarding hemoptysis in cardiac conditions. Still, Cabot reports 3456 cases of hemoptysis, of which 1177, or 34 per cent, were caused by mitral lesions. The textbooks scarcely mention it and yet all of us have seen many cases which we attributed to myocardial weakness, emboli, ruptured aneurysm or mitral stenosis. Too, the writer was surprised at the rare mention of the so-called "heart-failure cells," which are diagnostic of decompensation of the lesser circulation.

About twenty per cent of all cases of mitral stenosis show hemoptysis at some time during their course. Hemorrhage from the lungs in mitral stenosis may be caused either by embolism or by decompensation of the lesser circulation occasioned by failure of the right ventricle.

Parts of the thrombus formed in the dilated auricles, especially when coordinate contraction has ceased, may be dislodged and those from the right auricle may find their way into the lungs to form infarcts. These emboli have a predilection for the middle and lower lobes of the right lung. The hemorrhage from this condition is not alarming and as a rule the symptom lasts only a short time.

The engorgement of the pulmonary circulation with rupture of these overdistended blood vessels may give either continual bleeding of small amounts or be the cause of profuse hemorrhages. The small hemorrhage brings such relief to the patient that he feels better and remarks about it. A diagnostic point worth mentioning here is that the bloody sputum in mitral diseases persists for a considerable length of time, from months to years, while in pulmonary tuberculosis the bleeding persists only for a few days or weeks. The profuse hemorrhage is a grave sign, except in the presence of auricular fibrillation which is susceptible to digitalis. Emotion or exertion may cause such a profuse hemorrhage.

The so-called "heart-failure cells" are produced by the decompensation of the lesser circulation and may be found in any cardiac condition which will allow this impairment to continue for any length of time. The finding of these cells is pathognomonic. The red blood cells, which have been oozing into the alveolar spaces, are soon broken down and the liberated hemoglobin becomes hemosiderin and is deposited in the alveolar epithelium. These cells are swollen and contain yellow granules; they can be seen in the sputum unstained or at post-mortem in the lung. This is a diagnostic point for hemoptysis caused by mitral stenosis.

I wish to report two cases of mitral stenosis with hemoptysis, one case having small hemorrhages extending over a long period of time,

the other case having profuse hemorrhage of short duration.

#### REPORT OF CASES

Case 1. F. M., aged 21, white male, admitted May 28, 1928 (Service of Dr. C. C. Conover).

C. C. Smothering sensation, dyspnea, orthopnea, hemoptysis and frothy, red sputum.

H. P. I. Felt well until morning before admission. While out for a car ride he suddenly spit up a teacupful of blood. A doctor gave him a hypodermic and sent him to the hospital.

P. M. H. Influenza, pneumonia, diphtheria, whooping cough, measles, chorea at 9 years, duration 2 months. Tonsillitis often in winter. Six years ago physicians at Mercy Hospital refused to take his tonsils out on account of the heart condition. Has been on digitalis for 2 months, none in last 2 weeks. Has had palpitation and dyspnea on exertion.

S. H. Worked in a coal mine in Colorado up to 6 months ago.

Physical examination. Patient is sitting in bed; is dyspneic and restless.

Positive findings. Anterior pillars injected and tonsils septic.

Chest. Very long type, expansion fair and equal, moist rales all over chest, most marked at bases. Apex beat in 5th interspace in midclavicular line. Mitral configurated heart. Thrill and presystolic murmur at apex. Second pulmonic loud and snapping.

Abdomen. Slight tenderness over liver.

Progress record. May 28, pulse rapid. Symptoms relieved with morphine. 5-29, pulse slower with digitalis, dyspnea easier. 5-30, improving. Still spits up blood-tinged sputum. 5-31, dyspnea gone. Rests well. Still has bloody sputum. 6-2, digitalized. Feels fine. 6-4, improving. Sputum normal. 6-8, allowed up and around, no complaint. 6-9, released with instructions to take digitalis and visit outpatient service.

#### LABORATORY REPORT

Blood	R. B. C.	W. B. C.	Hb	Polys	L.L.	S.M.
5-28	4,100,000	14,700	90	82	11	6
12-27	3,100,000	6,050	70	54		46
12-29	2,129,000	11,150	55	84		16
Spec.						
Urine	Color	Reac.	Grav.	Alb.	Sediment	
5-28	Red	Ac	1.032	—	A few pus cells	
11-27	Red	Ac	1.030	4+	A few R. B. C.	
5-28	Blood Chemistry					

Sputum on 10 consecutive days negative for tubercle bacilli. Wassermann and Kahn negative.

F. M. Second admittance Dec. 24, 1928.

C. C. Hemoptysis, weakness.

H. P. I. Since release from hospital has been taking digitalis and felt fine until two weeks ago when he began to cough. Two nights ago he suddenly had a severe hemorrhage from the lungs; lost about a quart of blood.

P. M. H. Has gained some weight since June.

Physical examination. Patient sitting up in bed, rather pale.

Chest. Many squeaks and rumbles heard over both lungs, clears up considerably upon coughing.

Heart. Mitral configuration. Apex beat in 6th interspace, midclavicular line. Presystolic murmur and thrill at apex. Second pulmonic accentuated.

Abdomen. Liver tender, no ascites.

Extremities. No edema.



Fig. 1. Case 1. X-ray of chest. Note prominence of pulmonary area.

Progress record. December 24, transfusion 750 cc. citrate method. 12-25, feels better. 12-26, condition fair, pulse rapid. 12-29, hemorrhage last night, lost one quart of blood. This afternoon transfusion 800 cc. citrate method. Is spitting up small amounts of blood. 12-30, some better. Pulse fast and thready. 12-31, patient died at 4:30 a. m. without further hemorrhage.

F. M. This autopsy held at 12:30 p. m., December 31, 1928, in the autopsy room of the Kansas City General Hospital by Dr. Robert Koritschoner.

Body is that of white male about 20 years old, skin and mucous membranes very pale. No edema.

Abdomen contains about a pint of dark straw-colored fluid. Fluid is clear.

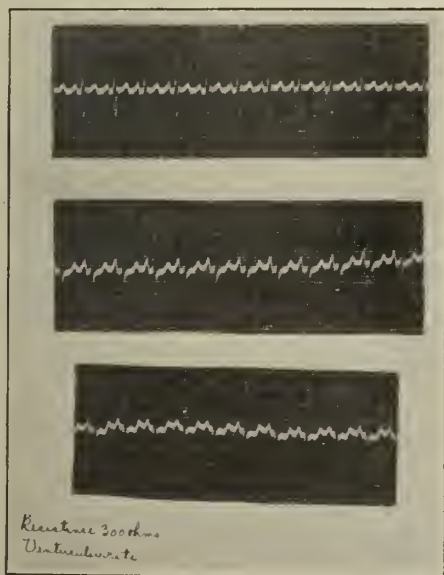


Fig. 2. Case 1. Electrocardiograph. Rate 120. Right ventricular preponderance.

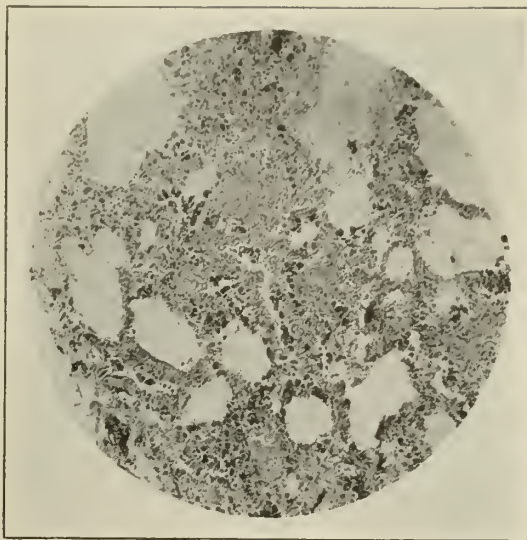


Fig. 3. Case 1. Showing lung fibrosis and heart failure cells. (Mag. X 110.)

Both lungs are free. Pleura smooth and shining. Lungs very voluminous and of doughy consistency. Color definite brown. Cross section shows lungs of brown appearance. No air empties from the alveoli. There is a small amount of bloody fluid. Bronchi show thickened walls. Large bronchi filled with blood clots. In left hilus are several enlarged calcified glands.

The pericardium is free and contains an increased amount of straw-colored fluid. The heart is enlarged, especially the right ventricle. Right ventricle wall thickened. Heart muscle very pale. Left atrium dilated and thickened. Left ventricle normal. Mitral valve grown together. Tendonous cords shortened and thickened. Ostium about 1 cm. in diameter. Pulmonary artery wide. Aorta small.

Liver, spleen and kidneys show no signs of severe anemia. Urine bladder and gastro-intestinal tract normal.

Diagnosis. Secondary anemia; hemocytolysis; brown induration of lungs; stenosis of left venous ostium; hypertrophy of right ventricle and left atrium.

Case 2. L. S., white male, aged 19, admitted Sept. 8, 1928 (Service Dr. P. T. Bohan).

C. C. Cough (all his life), hemoptysis (2 yrs.), loss of weight (11 lbs. in 5 weeks), weakness (8 weeks), pain in left side (6 weeks), poor appetite (3 weeks), dyspnea (1 yr.), vertigo (1 mo.), anemia (5 weeks), headache (3 weeks), tremor.

H. P. I. Never well but worked in a tank factory until 8 weeks ago when he was too weak to continue. Started spitting blood 2 years ago.

P. M. H. Diphtheria, scarlet fever, measles, mumps, chickenpox, pneumonia, whooping cough, chorea at 10. Tonsils and adenoids removed in 1918.

F. H. Father and mother living and well; 7 brothers and 3 sisters living and well; 1 brother died of heart trouble.

Physical examination. Well developed. Is acutely ill. Lies comfortably in bed on his back. Breaths rapidly and labored. Mucous membranes anemic. Rapid, prominent carotid pulsations.

Chest. Heavy diffuse apex beat; thrill at apex





Fig. 4. Case 2. Note typical mitral configuration with right-sided dilatation.

beat. Heart rate 140. Very loud sounds; difficult to hear murmurs; a probable presystolic murmur at apex.

Abdomen. Liver tender 3 fingers below costal margin. Spleen enlarged. No ascites.

Extremities negative.

#### LABORATORY REPORT

9-7 Blood R.B.C. W.B.C. Hb Polys Lym Trans  
2,700,000 17,050 35 84 15 1

Poikilocytosis, polychromatophilia, anisocytosis, Cabot's rings, Wassermann and Kahn negative. Sputum negative for tuberculosis. Pneumococcus and staphylococcus.

9-9 Urine Color Reaction Sp. Grav. Alb. Sugar  
Amber Acid 1.014 2+ —

Mucus, rare pus cells, many casts, coarse and finely granular.

This autopsy held at 3:00 p. m. Sept. 9, 1928, in the autopsy room of the Kansas City General Hospital by Dr. Robert Koritschoner.

Body is that of a white male about 19 years old, very large, well developed and fairly nourished. Skin very pale with slight yellowish tint. Mucous membrane very pale. No ascites. No edema.

Lungs free and very large. Both upper lobes crepitating. Lower lobes solid. Section shows lungs of rust brown color. Lower lobes show a dense brownish-red granular infiltration.

Pericardium is free. Fluid is increased. Heart much enlarged, especially the right side. Left ventricle dilated. Wall is thin. Left atrium wall thickened. Entire right heart wall much thickened. Valves of mitral ostium grown together, thickened, grayish-white, forming a very small smooth opening. The posterior wall of aorta retracted about half way. On the line of contact are small soft grayish-red irregular excrescences.

Spleen large, dark brownish-red color and hard. Liver enlarged and without structure.

Kidneys of normal size. Capsule easy to strip off. Surface smooth, pale grayish-red color. Structure absolutely indistinct.

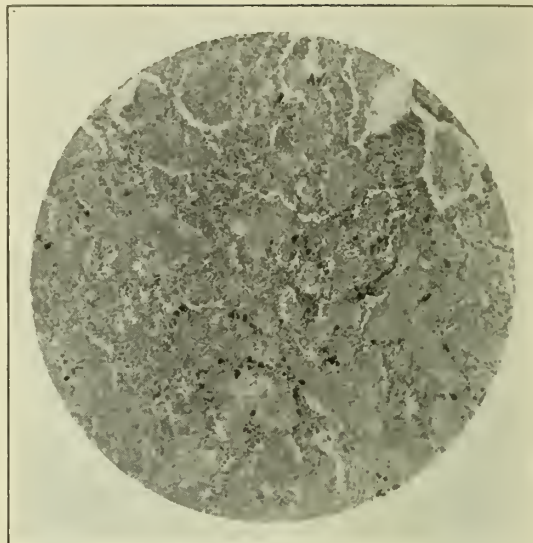


Fig. 5. Case 2. Showing lung hemorrhage and heart failure cells. (Mag. X 110.)

Intestinal tract normal except the stomach which shows a thickened and checkered pale mucosa.

Diagnosis. Stenosis of left venous ostium; insufficiency of the aortic valve; acute verrucous endocarditis of the aorta; brown induration of both lungs; anemia.

Just a word about blood transfusions in hemoptysis caused by mitral stenosis. Due to the stasis in the lungs it is certainly not wise to increase the general volume of the blood. It is best to give whole blood injections every day, 20 cc. in amount, in order to stimulate the hemopoietic system. Of course when used this way the blood need not be typed. This method has, the writer believes, been of value in two cases in which it was recently used.

#### CONCLUSIONS

A careful, detailed history with good clinical observations is necessary for a diagnosis of the etiology of hemoptysis.

There are many causes of hemoptysis.

Mitral stenosis may cause profuse hemorrhages.

So-called "heart-failure cells" are diagnostic of a continued decompensation of the lesser circulation.

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#### DISCUSSION

DR. ALBERT S. WELCH, Kansas City: It seems to me there is so much valuable material in this paper that it is well worth reading over several times. Cases suggestive of pulmonary tuberculosis, with not only hemoptysis but with other classical symptoms and the characteristic roentgenological findings, should not be passed over as pulmonary tuberculosis after only a casual examination. There are many other diseases that closely resemble tuberculosis. Patients may suffer with more than one disease. Some remote complication may exist in conjunction with tuberculosis.

Sometimes the individual with mitral stenosis gives a history suggestive of peptic ulcer. If his heart is not carefully examined before a stomach tube is passed the result might be disastrous. Sometimes these patients with mitral stenosis bleed from dilated esophageal veins, and the combination of spitting blood from the lungs and vomiting it from the stomach makes the picture confusing. In such instances there is danger in passing the large stomach tube.

### MANAGEMENT OF DIFFICULT HEAD PRESENTATION\*

W. L. CLAPPER, M.D.

ST. LOUIS

In a short paper it is impossible to cover the entire subject of the management of difficult head presentation, therefore I will speak briefly on the most common cases.

From statistical reports we should be able to improve our methods of handling these cases and so get better results. In my opinion, we cannot afford to disregard established facts in the physiological or mechanical management of obstetrics. Nor can we afford to violate the principles which have been laid down by them. The true prophylaxis in gynecology is the judicious application of obstetrics. We all know the happiest results are obtained by spontaneous delivery when such is possible. But when nature cannot bring about the desired results, don't wait until the mother is exhausted before giving assistance.

\* Read at the 72nd Annual Meeting of the Missouri State Medical Association, Springfield, May 13-16, 1929.

There are many indications on the part of the mother for assistance or for rapid delivery. There are also fetal signs of distress which are indications for interference. Such interference is only permissible when labor has progressed far enough to make it a matter of safety for the mother.

If the cervix is not sufficiently dilated and the head becomes engaged it is dangerous to attempt rapid delivery even though the child is showing signs of debilitation. It is rare that a living uninjured child is delivered and the danger to the mother is great with possible resulting invalidism.

It is impossible to lay down principles as to the use of forceps and version. One must necessarily rely on his own judgment and experience and render the assistance he is best able to give.

In the first stage of labor the uterus alternately contracts and relaxes. In most cases there is little shock or exhaustion, provided the patient is given necessary rest and food. Generally speaking, the patient needs little or no care at this time other than attention to bladder and bowels and observation of the heart, respiration and pulse and the general condition of mother and child. If the fetal heart sounds remain below 100 or if irregular between pains, it should be taken as a sign of danger to the baby. The mother should not be instructed to bear down at this stage as that only tends to exhaust the mother and overstretch the pelvic soft parts. Generally speaking, manual dilatation of the cervix should not be employed as this usually means cervical laceration.

In the second stage, the bearing down effects of the patient are added to the contractions. At this stage the baby's head meets the resistance of the soft structures and the bony pelvis, causing greater danger to both mother and child and calling for more careful observation and help.

The head enters the inlet of the pelvis with the sagittal suture in the transverse diameter or slightly anteriorly or posteriorly. It generally remains in that position until it reaches the ischial spines or pelvic floor, which rotates the occiput anteriorly. As the head is forced through the cervix it increases the flexion.

There are four established principles for applying forceps which should be ignored only in rare cases when the patient is in great danger. They are, (1) the cervix should be fully dilated; (2) the bag of waters should be ruptured; (3) the head should be in the pelvis; (4) the child should be of size to pass through the pelvis.

The same principles apply to the use of podalic version, with the exception that the bag



of waters should be standing or just ruptured.

The application of forceps before complete dilatation of the cervix is a very dangerous procedure. The application of forceps to inlet or high position is a very serious operation and many physicians recommend that it never be used. However, at times it seems the least of the evils which confront you because all other methods of delivering may be counterindicated. Therefore, when the mother is in a serious condition I would recommend that forceps be applied. There will be times when you will be able to deliver a living child, and if not, you have at least made the diagnostic test.

At times it is not easy to determine just how far labor has progressed, nor easy to make a diagnosis of the position of the head. It is also sometimes difficult to know when to assist, as well as which method to use.

Dr. Douglas Miller,<sup>1</sup> of Edinburgh, cites 558 cases of unsuccessful forceps of which 54 mothers and 357 babies died; of the 558 there were 211 due to contracted pelvis, 161 to posterior occiput, a few to face, brow, etc. The remaining 151 showed no abnormality of the pelvis, the child was of average size and presentation and position were normal. In a large majority of these cases the explanation for the failure could be found in the anxiety to relieve suffering before complete dilatation. In many of the patients the first stage of labor, through premature rupture of membranes, rigidity of the cervix, or ineffective uterine contractions, had been unusually prolonged and difficult. We all know how trying such cases may be and how easily the anxiety or importunity of relatives may combine with mental and physical fatigue to unbalance judgment and invite unwise intervention. Of the 151 cases 9 mothers and 78 babies died. Such figures indicate only too clearly how anxious must be the prognosis when an injudicious use of forceps results in failure to effect delivery. The full significance lies not only in the risk to life but also in the frequency with which invalidism may follow.

In primipara the head should descend into the pelvis during the last month. If it does not it is often due to contracted pelvis, too large head, tumors, or placenta previa. Whenever the head does not descend during the ninth month the attending physician should be on guard against trouble. In multipara with a history of previous instrumental deliveries the physician should also be on guard.

On examination all pregnant women can be classed under three headings, according to Miller's method:

1. The head is or can easily be brought into the pelvis.
2. The head cannot be brought as low in the

pelvis as in the first but does not show any or very little overriding. In this group there is often occasion to assist in delivery.

3. The head is not and cannot be brought into the pelvis and shows definite overriding. This group I would treat with cesarean section.

In all cases of instrumental delivery and version the patient should be anesthetized, catheterized and the diagnosis verified by a thorough vaginal examination, using the whole hand if necessary and locating the position of sagittal suture and the occiput. The position is best verified by locating the posterior ear and the nape of the neck. Apply forceps in diameter, running at right angles to the sagittal suture or facial line,—with one exception, i. e., the use of high forceps.

The left blade goes to the mother's left, anteriorly, laterally or posteriorly, and the right blade to the mother's right. Hold the forceps in front of the vulva in the diameter you wish them to occupy before applying, to assure yourself just where each blade is to go.

Insert the left blade first on account of the lock. The left blade is taken lightly and gracefully over the lock in the left hand and carried over the left groin of the mother. The middle and index fingers of the right hand are inserted into the vagina (palm up) to direct the forceps along the fetal head. All fingers are used when the position of the head is in the cavity, and the entire hand when the head is in the inlet; be very careful when the head is not through the cervix to direct the instrument between the head and the cervix. The blade is now allowed to drop and follow along your fingers and curve of sacrum until as high as desired. Then rotate the blade into position by lowering and rotating the handle.

The right blade is held in the right hand in a manner similar to that of the left, and carried over the right groin of the mother. The fingers of the left hand are inserted into the vagina and the application of the right blade is made like that of the left. The forceps are now locked. If they are applied correctly the handles will occupy the diameter of the maternal pelvis that they did when held in position before applying. Reexamine to see if the blades are at right angles to the sagittal suture.

A trial pull is now made by placing one hand on the shank of the forceps with the index finger against the fetal head. The pull is made with the other hand and if the finger comes away from the fetal head, the forceps should be reapplied.

Make tractions similar to contractions of the uterus by slowly and gradually increasing force until you get to the height of traction, then

slowly and gradually releasing your traction on the instrument. The head is brought to the outlet following the normal mechanism of labor and should be delivered slowly. Following the delivery of the head the anesthetic should be stopped, gently cleanse nose and mouth of the baby and hold its head in a position so that it will not aspirate any of the vaginal contents if it starts to breathe; wait a few minutes before delivering the shoulders.

To deliver the shoulders grasp the side of the head with both hands, gentle tractions downward and backward. Deliver anterior shoulder under the symphysis. Shift one hand to the nape of the neck and over the occiput and with the other support the perineum, and make gentle tractions outward and upward, delivering posterior shoulder first. Gentleness and care should be exercised in delivering the shoulders as otherwise they may cause deeper tears than the head has made. After the shoulders are delivered, again wait a few minutes before delivering the buttocks.

The reason for this slow method of delivering the shoulders and buttocks and for discontinuing the anesthetic is that it gives the uterus a chance to contract down on the child, the uterus contracting better without anesthetic, thus helping to prevent postpartum hemorrhage.

Let us now consider the four positions most commonly found in difficult head presentation. They are, (1) occiput posterior, (2) face presentation, (3) deep transverse arrest, (4) inlet position.

#### OCCIPUT POSTERIOR

The condition is encountered rather frequently; however, thanks to nature, 75 to 90 per cent rotate anteriorly and usually deliver without aid. The remaining 10 to 15 per cent comprise the persistent occiput posterior. In a very large percentage of these there is indication to assist in delivery. The process of labor is usually slow and the waters rupture early.

When the cervix is fully dilated, the uterus is not dry, the patient under deep anesthetic, the head is movable and can readily be pushed up, podalic version and extraction is indicated, first ironing out the vagina and stretching the pelvic floor. In such cases I recommend that deep lateral episiotomy be done, especially in primipara.

When the waters have been ruptured some time or the head is low in the pelvis manual rotation and forcep extraction is the method of choice. Ordinarily the occiput posterior is found in the right side of the pelvis. To correct this position it is more effectual to use the left hand in rotating; therefore, with the left

hand holding the head in position, the right blade should be applied first.

If the head cannot be rotated manually the only methods left are to rotate with instrument, the so-called Scanzoni method, or to deliver as a persistent occiput posterior. There is a diversity of opinion as to the use of the Scanzoni method. De Lee<sup>2</sup> denounces it as too dangerous, while Williams<sup>3</sup> has been highly successful with its use. Personally, I have used it successfully. The forceps are applied at the right angle to the sagittal suture with the pelvic curve looking toward the sinciput. I like the method recommended by Bill,<sup>4</sup> which is as follows: "The blades of the forceps are brought in line with the long diameter of the head by depressing the handles before locking them. The forceps are locked and the handles then raised and carried around in a sweeping circle in such a way as to keep the blade constantly in the same axis. The rotation is continued until the occiput is under the symphysis. There is absolutely no traction on the head during the rotation. Occasionally, if the head seems to be slightly impacted, it is loosened by a slight upward pressure. After the rotation and before the blades are removed, enough downward traction is made to fix the head in its new position. The forceps are then removed and reapplied as to a normally placed head."

If the rotation seems too difficult or if personal opinion is against its use, the instruments are left in the first position and the child is delivered as a persistent occiput posterior. In this case a deep lateral episiotomy should be made.

#### FACE PRESENTATION

As a rule, the progress of labor is slow and the waters rupture early. The face is soft and makes a poor dilator. The usual mechanism is that the descent occurs with the face line in transverse diameter of the pelvis. The anterior rotation of the chin does not take place until the face is well down on the pelvic floor. Do not let the chin get in the hollow of the sacrum, which is impossible of delivery as such unless it is a very small child in a large pelvis.

The progress may be arrested at any stage and there may be abnormalities of the mechanism. Many face presentations are delivered spontaneously but in a large proportion of them there is an indication to assist in delivery.

After the diagnosis is complete, a deep lateral episiotomy is made and forceps applied at right angles to the facial line. The face is brought well down on the pelvic floor, the chin carefully rotated anteriorly and delivered first, then the face and occiput. If the waters are



standing or just ruptured and the head is not in the pelvis, or not fixed, I recommend podalic version.

#### DEEP TRANSVERSE ARREST

This is due to, (1) arrested rotation as result of exhaustion, (2) large pelvis and small child, (3) lax condition of pelvic floor, (4) malformed pelvic outlet, (5) distended bladder or rectum, (6) tumor of soft or hard parts, (7) relaxed or pendulous abdomen, (8) extension of head.

If caused by distended bladder or rectum, relief may be obtained by emptying the organ so that delivery may be spontaneous.

In the other causes instruments are the means of delivery. Apply instruments at right angle to the sagittal suture, make traction downward while gently rotating the occiput anteriorly. Then the delivery is a low forceps.

#### INLET POSITION

In the inlet position with the cervix dilated and the mother's condition demanding assistance, high forceps may be applied. The indications are, (1) dry uterus, (2) ring formation of the lower uterine segment or tight uterus, (3) justo minor pelvis without pelvic disproportion. These are counterindications for doing a version. They are also counterindications for doing cesarean section because of sepsis.

In my opinion, high forceps are the only cases of forceps delivery where the instruments should not be applied at the right angle to the sagittal suture. They should be applied obliquely, one blade over the mastoid process and the other over the opposite brow. This allows the blades to enter the inlet of the pelvis slightly obliquely. If the forceps were applied at the right angle to the sagittal suture the posterior blade would more or less bridge the hollow of the sacrum and the anterior blade would come against the posterior surface of the symphysis. After episiotomy is made and the forceps applied obliquely, traction should be exerted downward and backward in the direction of the inlet of the pelvis. After the head has been delivered into the pelvis the instruments should be removed and reapplied at the right angle to the sagittal suture. The rest of the delivery is that of the midforceps. In conditions of contracted ring or tight uterus the patient should be deeply anesthetized.

If high forceps are unsuccessful, it usually means a craniotomy must follow.

When the waters are still standing or have just ruptured in the inlet position the indications are for podalic version, especially in multiparae. Posture may help, particularly

Walcher's position which increases the anterior-posterior diameter of the inlet of the pelvis.

#### CONCLUSIONS

Spontaneous delivery is the method of choice when it works. Difficult head presentation is usually a long hard labor, very trying to both patient and doctor. In many such cases I recommend two things, (1) use of drugs to give the patient rest and relief from pain, (2) wait for spontaneous delivery when possible rather than too early interference, or, if instruments are used, successful delivery depends on, (1) sufficient progress of labor, (2) correct diagnosis, (3) proper application, (4) force exerted according to the normal mechanism of labor.

University Club Building.

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#### PRENATAL CARE\*

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Obstetrics, as a specialty, has long been in a dormant state. It has been the custom too often to place the obstetrician on the lowest rung of the ladder of medicine and surgery. In other words, the obstetrician has been considered the least important specialist in the branches of medicine and surgery. Obstetrics has been treated as a stepchild of medicine, a sort of outcast and nuisance, or a necessary bugbear done in order that we might keep the family practice with its more interesting phases. It has been too long considered a perfectly normal physiological process in which we officiate from the beginning of labor pains until the cord is tied off and the placenta delivered.

In more recent years some of our obstetricians have come to consider it purely as a surgical specialty and treat it as a pathological entity. More and more we come to appreciate that it is a medical as well as a surgical specialty. The time is not far off when we shall look upon obstetrics as the supreme specialty, for we are realizing that we have the responsibility for two important lives. The doctor has a nine months' task on his hands. The mother must be watched and treated for her future safety;

\* Read at the 53rd Annual Meeting of the Southeast Missouri Medical Association, Cape Girardeau, October 1-2, 1929.

for the prevention of injuries, eclampsia, endocrine disturbances, focal infections, hemorrhage, and so forth. The baby in the making is a helpless, dependent individual. It inherits something from the father, but from the mother will come his chief heritage. It is she who furnishes food and endocrine hormones through the placental circulation. Our knowledge of the mother's physical condition and the proper care we give her marks the success or failure of her future, and the type of citizen the baby makes for society.

The responsibility of the obstetrician is, then, probably greater than that of any other specialist. Why should some babies have syphilis? Why are some stillborn, some delicate 3 pound babies, while others are 12 to 14 pound babies of dangerous oversize? Why are some backward, timid, and slow in cutting teeth, walking, talking or closing their fontanel? Why do some have pylorospasm or pyloric stenosis? Why do some girls have painful menstrual irregularities? All these and more may be prevented, or if not prevented the doctor or accoucheur must bear the blame.

Polak once said, "Obstetrics is a three-linked chain, consisting of prenatal, natal and post-natal care. The kind of obstetrics we practice is no better than the weakest link."

In the practice of prenatal care there are three main points I wish to emphasize, namely, (1) preventive medicine; (2) early recognition of pathological conditions and their correction; (3) building of high resistance, good nutrition and stamina for both the mother and the expected infant.

#### PREVENTIVE MEDICINE

The proper place to begin the practice of medicine is at the commencement of human life, and prevention is the debt which we as physicians owe the expected infant. This places prenatal care as the first, greatest and most fertile step in preventive medicine.

Draper<sup>1</sup> says: "It would appear that if the 150,000 physicians in this country could be enlisted in a serious effort to improve and conserve health of the millions of patients with whom we come in contact, a tremendous impetus could be given to the cause of preventive medicine." Again: "If I read the times aright, the time is not far distant when the public is going to demand protective advice from the physician. . . . It is easy to blame defects and disease on the ignorance or carelessness of the individual, but I believe that much of the wastage could be fairly laid at the door of the physician who has neglected abundant oppor-

tunity for service and also for legitimate compensable medical practice."

When the practitioner begins to preach, teach, and practice prenatal care more wisely we can agree with Musgrave<sup>2</sup> that competent medical service can make childbirth safer and make the extended practice by mail useless because the expectant mother needs individual medical care during the prenatal life of her child.

Woodbury states that nearly 20,000 mothers sacrifice their lives annually, and 100,000 infants never reach full term, while almost another 100,000 perish before the end of the first month of life. Miller,<sup>3</sup> Altman,<sup>4</sup> Mosher,<sup>5</sup> Rucker,<sup>6</sup> Sellers and McBride<sup>7</sup> and others have repeatedly reminded us that the United States is the most unsafe place of the 14 civilized nations for a woman to have a baby. This alone should appeal to the physicians of the country. Baker<sup>8</sup> has more recently stated that the United States holds at present an unenviable position with regard to its maternal mortality. It now ranks nineteenth among the twenty nations of the world. The only civilized country showing a higher death rate among women from accidents and diseases incident to childbirth is Chile. Rucker<sup>6</sup> points out that the death rate in the United States is almost double that of England and Wales. Newman<sup>9</sup> says that next to tuberculosis the highest mortality among women results from childbirth. During the World War we lost approximately 125,000 soldiers, but during the same time 150,000 women gave their lives before, during, or soon after confinement. To this last we have given far too little thought.

Welz has shown that the maternal mortality can be reduced 50 per cent and the fetal rate reduced 16 per 1000 by good prenatal care. Probably no other condition is more dreaded by the practitioner than eclampsia. Mosher<sup>5</sup> shows that in 1923 the number of deaths from eclampsia in Missouri was 88, or about 20 per cent of the maternal deaths. Miller<sup>3</sup> states that 95 per cent of eclampsia is preventable. Adair and Maland<sup>10</sup> conclude that deaths from the toxemias can virtually be eliminated by proper instruction, supervision and treatment of the mother during the period of gestation, parturition and puerperium.

As to the mortality of the infant no better proof can be offered for prenatal care than the report of Beck<sup>11</sup> who analyzed 3000 obstetrical patients and found the following: In the first 1000 with no prenatal care there were 76 infant deaths; in the second 1000 with nurse supervision there were 47 infant deaths; in the



third 1000 with prenatal care there were 25 infant deaths.

Syphilis, according to Williams,<sup>12</sup> is the cause of 35 per cent of fetal deaths. Jeans<sup>13</sup> found in his work about the same percentage. In 93 syphilitic expectant mothers Hall<sup>14</sup> treated with arsphenamine and mercury 74 gave birth to healthy babies. During a period of one year Young and Likens<sup>15</sup> treated luetic pregnant mothers and found that the percentage of fetal deaths was 8.5 per cent against 47.6 per cent in the untreated.

#### EARLY RECOGNITION OF PATHOLOGICAL CONDITIONS AND THEIR CORRECTION

The recognition of pregnancy not later than the third month is necessary for the best prenatal care. Ordinarily one is safe in assuming that a woman is pregnant when there is an absence of menstruation, morning sickness and Hegar's sign. Douglass<sup>16</sup> expresses vehemently the usefulness of Hegar's sign. He particularly emphasizes an unmistakably doughy feel and at the same time elastic resiliency from the uterus before the development of a typical Hegar's sign. He says, "In the vast majority of cases within a week or ten days after the first missed period, a slight resilience or elasticity of part of the fundus may be felt on manual examination. The vaginal finger moves its way, step by step, advancing up the anterior uterine wall. By careful palpation through the bladder the uppermost point of the cervix is felt, above which is the slight depression marking the site of the future lower segment. This is a forerunner of Hegar's sign. The upper part of the uterus may feel hard, firm and 'like a potato,' but immediately below this on the front of the fundus uteri the rubbery elasticity may be made out extremely early."

Occasionally there are reasons in which we are not sure and other measures are necessary. The phlorhizin test introduced by Kamnitzer and Joseph has been a disappointment as Helman,<sup>17</sup> Tarp,<sup>18</sup> and Milner and Fennell<sup>19</sup> have found too many positives in men and nonpregnant women. The Abderhalden test likewise has been a disappointment for the same reason. Smith and Shipley<sup>20</sup> attempted to modify the technic but concluded that it is of no value because of too large a number of positives in men. The X-ray according to Speidel and Turner<sup>21</sup> is a most positive means of diagnosing pregnancy, but they state that not until the 5th month is the density of the ossification centers great enough to show definitely in the roentgenogram. Stein and Arens<sup>22</sup> have reported most favorable results with pneumoperitoneum and the use of pseudo-stereo glass

before quickening, but the interpretation calls for expert radiology.

The only promising methods at present seem to be the procaine test of Costa<sup>23</sup> and the glucose test. In the former, neurosyphilis and tuberculosis must be ruled out. In the latter, diabetes, hyperthyroidism and hyperpituitarism must be excluded. With the technic of Milner and Fennell<sup>19</sup> they conclude that the glucose test is a presumptive test for pregnancy.

A very complete history is more important in early pregnancy than in almost any other condition of human ailments. Particular attention should be paid to recent infections, malaria, pyelitis or syphilis, as well as existence of previous miscarriages, stillbirths and difficult labors. It is well to know whether the mother was a bottlefed baby and if there were difficulties in feeding. What was her birth weight? At what age she cut teeth and was there an early decay? At what age did she begin menstruation and were they painful and irregular?

Disease of the heart, lungs, kidneys, pelvic organs, endocrines, etc., should be sought for and appropriately treated from the first visit.

The expectant mother should visit the office once each month. Most troubles can be entirely prevented by careful watching and supervision. A careful record should be kept and recorded each month of the weight, measurements, blood pressure, etc., that we may nip in the bud a pathological condition thereby saving maternal and fetal lives as well as hours of trouble and worries for ourselves at time of labor.

*Weight.*—There is probably no more important criterion of what we can expect during labor than the careful watching of the mother's weight from month to month. Determine what her best weight has ever been, then estimate and record what her weight should be for her height and age, with some consideration for racial characteristics. Now record in proper place her weight for term that is ideal and try to keep her to it.

According to Davis<sup>24</sup> the normal woman should not be allowed to gain more than 20 pounds during her prenatal period. The overweight woman should not be allowed to gain excessively; the underweight woman may be allowed to gain 25 or 30 pounds with benefit. In my experience most patients lose weight in the first three months, largely in proportion to the degree of vomiting and worry. In the 4th month the gain may be from 3 to 8 pounds. An average gain per month of 2½ pounds is expected. In the overweight I have been fearful of excessive gain, but the fact is they sel-

dom gain more than 10 to 12 pounds. In the very delicate underweight woman I have seen a total gain of 35 pounds with benefit to the mother and the baby at birth would weigh 7 to 8 pounds.

What bad results might be expected of excessive gain in weight? (1) Eclamptic persons are usually women who have gained rapidly during pregnancy. (2) A pregnant woman who is 25 or 35 per cent under or overweight, according to Taylor,<sup>25</sup> is a victim of endocrine dysfunction, usually thyroid or thyropituitary in type. The baby then will be too large or too small or defective because of imbalanced endocrines. (3) If the mother is allowed to eat too much and become overweight it seems natural that the baby, too, would gain in excess, which will mean difficulty in its passage through the birth canal with resulting lacerations or an injured baby, or both, as has been pointed out by me in a previous publication.<sup>26</sup>

In the future the announcement of a 10 or 12 pound baby at birth will be a reflection on the knowledge of obstetrics of the physician in charge.

*Measurements.*—Measuring the abdomen with a tape line just above the hip bones and about the navel will help us to estimate the size of the baby. The average patient at nine months measures from 38 to 41 inches. More than 42 inches except in the obese means a very large baby, twins, or excessive amniotic fluid.

With the pelvimeter there are three measurements that are ordinarily sufficient. The external conjugate or diameter of Baudelocque should be about  $7\frac{1}{2}$  inches (just below the spine of the last lumbar vertebra and the symphysis pubis at a point  $\frac{1}{8}$  inch below the upper border), subtract  $3\frac{1}{2}$  inches for the true conjugate, or about 4 inches. The oblique should be about 9 inches (posterior spine to opposite anterior spine). The transverse diameter measured from anterior spine to anterior spine if found to be  $10\frac{1}{4}$  inches, is normal.

*Blood Pressure.*—There is no more important test to be regularly made and recorded than the blood pressure. A sudden rise should make us think of a beginning eclampsia. A systolic rise to 130 or 140 is valuable warning. Rubel<sup>27</sup> has expressed the importance of the diastolic pressure and Osborn<sup>28</sup> says that the diastolic is the more important and better indicator of a serious toxic state in pregnancy. Eclampsia is estimated by many writers to cause 40 per cent of the maternal deaths. That it is preventable by proper watchfulness and supervision has been shown by Litzenberg,<sup>29</sup> Baker and others. Litzenberg says: "No

physician has a right to accept women for confinement if he will not give them prenatal care, and if he does not, he belongs to the class who are causing the high maternal mortality."

*Endocrine Dysfunction.*—There seems to be no doubt that endocrine dysfunction plays a most important role in pregnancy, both for the mother and the child. O'Keefe<sup>30</sup> states that the relationship of hypothyroidism to obstetrics is certainly of great importance. According to Taylor<sup>25</sup> the borderline type of hypothyroidism with basal test showing 7 or 8 minus is most serious and the mother will not give birth to a well balanced baby unless properly treated during the antenatal period. If one delves into the study of the endocrine complex of mothers, searches the literature for knowledge and learns what defects and deformities may be due to hormone dysfunction, he is likely to conclude that obstetrics offers the greatest complication of study and care of any other phase of medicine. He might even agree with Anspach that the modern obstetrician might be regarded as a real menace to a community. Until some accepted standard is developed and recognized we will have to go on the best we can with the limited knowledge we have and console ourselves with learning something from endocrinology along with our fellows.

*Focal Infection.*—The teeth should be examined and carefully noticed for brittleness, decay, abscess formation and pyorrhea. It is a good habit to request the mother to see a dentist as soon as possible and have her teeth cared for. It is well to inquire into a history of otitis media and examine the ears with an electro-otoscope for signs of infection. Infected tonsils and endocervicitis are not to be forgotten. In fact, foci of infection should be found and taken care of as soon as possible. Speidel<sup>31</sup> considers focal infection the important factor of many heart murmurs, kidney disease and infarcts in the placenta that cause abortions. It seems likely that focal infection has a bearing on prematurity, fragility of blood vessels and general weakening of the infant and mother.

*Vomiting of Pregnancy.*—There is certainly nothing that makes a woman dread pregnancy more than persistent vomiting. It is the one condition she will seek help for early. It seems that vomiting to a certain degree is normal in most cases. Etiologically Crossen<sup>32</sup> divides vomiting of pregnancy into three theories: The toxic, the neurosis, and the carbohydrate deficiency theory. The milder type responds to a high carbohydrate of cereals, toast, crackers, potatoes, fruit juices, etc. The moderate type may respond to  $\frac{1}{2}$  gr. of luminal 3 times daily



and 10 minims of dilute hydrochloric acid before meals. Gardiner's<sup>33</sup> postural method may be helpful. He requires the patient to lie face downward and the foot of the bed elevated so that the buttocks are a few inches above the level of the shoulders. Sometimes the intramuscular or intravenous use of corpus luteum according to the method of Hirst<sup>34</sup> is excellent. In the severer types response is 90 per cent good by the method of Crossen<sup>34</sup> which is as follows: Nothing by mouth for 48 hours; daily enema; luminal sodium, grams .09 hypodermically every 6 hours day and night until sedative effect is achieved; saline or Ringer's solution 1000 to 1500 cc. twice daily; intravenous glucose (10 per cent 1500 cc. twice daily).

In brief I have mentioned some of the most important procedures and their management during the antenatal period. As one practices more and more, prenatal care will develop volumes for necessary observations and procedures. Time does not permit the voluminous mention of all there is to do.

#### BUILDING A HIGH RESISTANCE, GOOD NUTRITION AND STAMINA FOR MOTHER AND EXPECTED INFANT

It should be our aim throughout the prenatal period to build a high resistance power for the mother to meet her natal ordeal. We should also expect the baby to be as perfect a specimen as it is in our power to build through instruction and supervision. No other animal or machine should be expected to be better. Our babies should be better than our calves or pigs if the obstetrician is worthy of his *Nomen delecti*.

When the prize fighter contemplates entering the ring to win a boxing match, particularly for championship, he starts in with a thorough physical examination, then systematic exercise, proper diet and sufficient rest. He excludes from his preparation period, drinking bouts, petting parties, sexual intercourse, card parties and all things that may interfere with his welfare toward reaching perfection. This is equally important for the mother and probably more so for the expected infant.

It seems very logical that if the mother walks in the open air for a mile at a certain time every day at the end of 9 months every muscle is prepared for the strenuous labor that is to come. The state of exhaustion so often seen at the beginning of the second stage is not so apt to occur. Pituitrin and instrumental delivery will not be met with so often because of inertia or exhaustion.

For the normal patient the diet of McCollum,

consisting of one quart of milk, a leafy vegetable, a root vegetable and fresh fruit, cereal and bread, an egg, meat or fish, is quite ideal.

Stamina will come by proper habit training and encouragement by the physician. Proper rest periods, efforts to throw aside worry and a determination to make the best of her situation with the same effort and will towards success that one would put in a grocery business or millinery shop. Her success will be equal to her chance, times her ability, times the energy she and her doctor put forth.

It is a good habit to ask three questions on each monthly visit at the office, which are: (1) Have you walked 6 blocks and back every day this month? (2) Have you gone to bed at regular hours and gotten 8 or 9 hours undisturbed sleep and do you lie down and rest an hour after noon? (3) Have you carefully followed the diet outlined every day during the month?

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## THE CONDUCTION OF NORMAL LABOR\*

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The practice of obstetrics is of necessity almost as old as the human race itself. In common with most other forms of medical science, its beginnings are shrouded in the mists which preceded the dawn of history. Childbearing has always been accepted among primitive peoples as a natural process and treated with indifference and brutality. Any civilization may be rather accurately judged by the position it yields to women. And it has been said in this connection that the position of women is gauged best by the care given her at the birth of her child.

There are twenty civilized countries in the world which record the proportion of mothers and children who die at childbirth. The order of those fatalities places the civilization of a country. The United States ranks twentieth from the top according to the statistics prepared by the committee on maternal welfare and reported to the Association of Obstetricians and Gynecologists and Abdominal Surgeons in annual convention at Memphis, Sept. 17, 1929. The rate in the United States was given as 6.5 deaths of mothers per 1000 births; in Scotland 5.8; Germany 5.3; England and Wales 3.8; Italy 2.7; and in Scandinavian countries 2.6. Sixty-five per cent of all maternal deaths were declared due to two causes, septicemia and toxemia, both preventable.

In the United States, 80 per cent of women are attended by physicians and the death rate is 6.5 per 1000. In Sweden 80 per cent of the women are attended by midwives and the death rate is lowest, 2.3 per cent per 1000. We learn that the midwives in Sweden are well trained in the principles of obstetrics and may be favorably compared in intelligence to our best trained nurses. It is reasonable to conclude that the

low death rate in Sweden is not attained by the routine abrogation of the second stage of labor by version and extraction, by so-called prophylactic forceps, or by frequent cesarian section, nor is it likely that labor is hurried by the use of pituitary extract. On the other hand, we are forced to conclude that in all probability there is a general policy on the part of the midwives of noninterference except in cases of real dystocia when a special obstetrician is called in.

That interest in the high death rate in the United States is not confined to the medical profession is evidenced by articles in the lay press. In the June number of Harper's magazine is an article by Dorothy Dunbar Bromley entitled, "What Risk Motherhood," in which she discusses this subject and quotes statistics approximately the same as I have given. She says in part: "That a woman should jeopardize her life, or at least her health, when she gives birth to a child has long been accepted as one of the inexorable laws of nature. And so it happens that while science has been waging a winning fight against diseases such as typhoid fever, diphtheria, tuberculosis and pneumonia, the great problem of maternal mortality has received comparatively little attention. Curiously enough, the lay public is not yet awake to the seriousness of the situation. Few people for instance know that approximately 15,000 women die in this country from childbirth every year, or that the mortality rate which these figures represent is as high as it was in 1900. . . . "Communities must wake up to the fact that it is as much their civic duty to make available the best grade of maternity care to every woman as it is to protect their citizens from murder and mayhem in the streets. That so many thousands of women should continue to die and to be invalidated for life in this country which boasts of its scientific and humanitarian achievements is a disgrace."

In the September Harper's is an article by the same author. "The Maternal Instinct," in which she says: "And finally, let the medical profession attack the burning problem of maternal mortality and of physical disabilities which follow childbirth."

Polak<sup>1</sup> discussing labor under the title "Better Obstetrics Needed," says: "The leading causes of this needless loss of life are: lack of prenatal study and antepartum care; the tendency to hurry nature's processes by drugs or operative interference; lack of asepsis; lack of judgment in determining the indications for interference; error in choice of method and lack of proper follow-up care during the puer-

\* Read at the 53rd Annual Meeting of the Southeast Missouri Medical Association, Cape Girardeau, October 1-2, 1929.

1. Polak: *Long Island M. J.*, November 1923.



perium. Contributory causes are a lack of appreciation on the part of the physician of his responsibilities when he contracts to attend a woman in labor. Every woman should be under continuous medical supervision from the beginning of her pregnancy, and be instructed in the hygiene, the danger signals, and she should be made familiar with the physician's and her own responsibility for the successful completion of the natal process."

Since as general practitioners we have a large share of this responsibility let us discuss some of the factors that constitute the obstetrics problem.

Asepsis and antisepsis are the chief factors of the problem so far as the responsibility of the physician is concerned in the conducting of labor. These have reference to, first, the physician; second, the patient; third, the environment.

In considering the patient we learn that the uterus and upper third of the cervix are sterile, but that the vagina is often and the vulva always infected with nonpathogenic and pathogenic bacteria. Why does not every woman in labor become infected? Why does not autoinfection occur more often? Autoinfection means the development of sepsis during the puerperium from germs which existed somewhere in the woman's person at the time of labor. The reasons for the rare occurrence of infection are the parturient has developed immunities against the germs which have made the vagina their habitat; of liquor amnii; the progress of the child and the placenta, the running of the blood, and from above downward all oppose the upward wandering of vaginal bacteria; the vaginal mucus has slight bactericidal properties; the bacteria have a low virulence during labor, acquiring invasive properties only after the third day of labor postpartum, but by this time the puerperal wounds are covered by granulations which oppose attack.

Let maternal immunities be broken, as by severe hemorrhage, shock, eclampsia, etc; or let a new virulent bacterium be introduced; let the physician in his manipulations carry too many of the vaginal bacteria up into the uterus, or let him break up the protective granulations above referred to, and the germs will rapidly invade the system, producing the disease puerperal fever. The asepsis of the patient, therefore, consists mainly in the preservation of her immunity by sustaining her strength, procuring a normal course of labor, avoiding the necessity for operative interference, and by conducting these with the least possible amount of damage. By restricting the internal ex-

aminations and conducting the labor, so far as possible, by external examinations and observations of its course we avoid carrying the infective material present in the vagina into the tissues.

In brief, the two main principles are: limit the number of puerperal wounds, and, second, prevent infection of the necessary puerperal wounds.

In a certain portion of labor cases the general practitioner will have the aid of a trained nurse or a practical nurse. In such cases it is a great satisfaction to go to the home of the parturient with the knowledge that everything for the proper conduct of labor has been provided and is in readiness. Under such circumstances it is not difficult to conduct labor in a manner that meets the approval of our own conscience in regard to asepsis. But in the greatest percentage of cases most of us depend upon conducting the labor with the articles that we take with us when called.

The first examination if in the early stage of labor may be made in a leisurely manner, the first few minutes being devoted to general observations. Note the general condition and appearance of the patient, the frequency and strength of the pains, count the pulse, take the temperature and blood pressure. Inquire as to the condition of the bowels.

If the examination reveals that there is plenty of time, a dose of salts or oil should be given to be followed by an enema of soapy water in 2 hours. Following this the bowels should be evacuated every 12 hours by enema, but no enema should be given if delivery seems near.

In preparing the patient and in conducting the labor it seems wise to have a regular routine to be observed, as nearly as possible, in each case attended. Moving the bowels with salts and enema has already been mentioned. It is frequently possible for the patient to have a bath and change of clothing. It is most always possible for the long hairs about the vulva and pubis to be clipped or shaved and the parts washed with soap and water. It is always possible and with me has been a routine to paint the vulva, pubis and inner part of the thighs with a five per cent solution of mercurochrome.

In further efforts at asepsis and antisepsis I like to have 2 basins for solutions. In one, a solution of lysol,  $\frac{1}{2}$  oz. to the quart, in the other 2 or 3 oz. to the quart. In the strong solution I place scissors, needle forceps, 2 tubes obstetric catgut and any other small instruments that I may have occasion to use. I also use the strong lysol solution for washing rubber gloves after they are on my hands, and

without drying them, except with cotton sponge, I anoint the examining fingers with carbolated vaseline. After making vaginal examination I use a cotton sponge from the same solution over the waste pail to cleanse the gloves of vaseline, etc. Thus I am able to keep the solution clean. The gloves are again washed in the lysol solution, dried with a towel, powdered and taken off by turning the powdered side in. The weaker solution of lysol,  $\frac{1}{2}$  oz. to the quart, is used for washing the vulva as labor progresses.

The conduction of the first stage of labor is one of watchful waiting. The duty of the physician is to observe the efforts of nature, not to aid, until she has proven herself unequal to the task. Attempts to hasten the dilation of the cervix should not be made. Premature efforts of the mother aid very little in the first stage of labor, and tire her so that she has not strength left for the expulsive work of the second stage; further, it is distinctly harmful since the child is forced down before the os is dilated.

Every woman in childbirth is entitled to anesthesia. However, opinions may vary as to the time for the employment of pain relieving agents; there is a consensus of opinion among obstetricians in favor of the use of one or other means to meet the demand for lessened suffering incident to delivery.

Adequate rest and nourishment are highly important. When the pains are well established, strong and regular, much relief may be given to the patient by the administration of morphine and scopolamine, or morphine and 50 per cent magnesium sulphate hypodermically. The initial dose should be morphine gr.  $\frac{1}{6}$ , scopolamine gr.  $\frac{1}{200}$  and should not be used unless it is as long as four hours before delivery, followed in an hour by a second injection of scopolamine gr.  $\frac{1}{200}$ ; if twilight sleep is desired and is not produced, the scopolamine gr.  $\frac{1}{200}$  may be repeated in an hour. The magnesium sulphate solution should be given intramuscularly and the initial dose should be 2 cc. of a 50 per cent solution in which morphine gr.  $\frac{1}{6}$  has been dissolved. The magnesium solution may be repeated once or twice at intervals of twenty minutes. In connection with the use of magnesium sulphate and morphine, ether in oil with quinine may be given as an enema, after the method evolved in the New York Lying-In Hospital, if it is desired to obtain obstetrical analgesia.

Every physician who assumes the responsibility of conducting many cases of labor should familiarize himself with scopolamine-morphine narcosis in childbirth and the technic

of obstetrical analgesia as produced with magnesium sulphate and morphine followed by ether in oil as an enema. The consideration of anesthesia becomes urgent with the second stage of labor. Four main points are to be considered during the second stage; (1) Asepsis and antisepsis; (2) anesthesia; (3) protection of the life of the child; (4) preservation of the perineum.

Asepsis and antisepsis have already been discussed, but as applied to the second stage of labor I try to keep a large pad of cotton wrung out in lysol solution over the vulva. As labor progresses I frequently wipe and cleanse the soiled parts with cotton wet with lysol solution and change the large pad over the vulva.

*Anesthetic.*—I prefer chloroform as a general anesthetic and in giving it use the ordinary inhaler covered with four layers of gauze. The chloroform is made to drop through a piece of cotton by the side of the cork. In this way the rapidity of the drop can be so exactly regulated that I feel safe in placing it in the hands of any one present willing to give it. I sit at the side of the bed and with one hand against the pad that covers the vulva, note the progress of the head over the perineum, and permit the chloroform to be dropped on the inhaler only as I direct. While I am sitting in this position noting the progress of the head, watching the patient, and directing the chloroform, I have a pan of lysol solution with several large pads of cotton within reach and a jar nearby for disposal of soiled pads. When the head is bulging well out I cleanse the vulva and anus thoroughly and place a sterilized waterproof paper under the hips with a large piece of dry clean cotton under the vulva, against the anus, which protects the child's face from becoming soiled by whatever may escape from the bowels; a clean towel or cloth is laid on which to receive the child. Thus prepared the child makes its way into the world slowly with the aid to the mother of more and more chloroform.

*The Care of the Child.*—After waiting until the pulsation in the umbilical cord has perceptibly weakened or disappeared the child is severed from its mother. Until the cord is severed the child is still a part of its mother and has no legal existence. With a piece of tape the cord is ligated about  $\frac{1}{2}$  inch from the skin margin and again some inches from the first, and the cord is severed close to the first ligature.

During the 4 to 8 minutes while waiting to tie the cord the child obtains from 40 to 60 grams of reserve blood of the placenta, a fact first shown by Budin. The stump of the cord



is covered with sterile cotton and the infant handed to a nurse or helper who is instructed to anoint and rub the baby with mineral oil or white vaseline to remove the vernix caseosa. When the baby is clean the cord is again dressed, the eyes washed with clean water or boric acid water and a few drops of silver nitrate solution instilled.

*Third Stage of Labor.*—According to De-Lee, more women die from accidents of the third stage of labor than during the other two combined. On a proper conduct of this stage of labor depend the woman's freedom from postpartum hemorrhage, the expression of the placenta and membranes complete, the smooth convalescence during the puerperium.

The same general principle applies to the treatment of this stage as to the others, the physician watching the patient and interfering only for good reasons.

After delivery of the child a hand is placed on the abdomen against the fundus of the uterus until after pains occur when pressure is made and the placenta expressed.

The work of changing the bed and bathing the mother is carefully supervised. If there has been a tear of the perineum it is repaired with 20 day obstetrical catgut after the bed is clean and dry.

My last effort at antisepsis is to paint the vulva and inner parts of thighs with 5 per cent solution of mercurochrome and instill into the vagina ten or fifteen cc. of the same solution and cover the vulva with a large piece of dry sterile cotton.

## POSTNATAL CARE\*

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Postnatal care is divided for convenience of discussion into three periods: (1) That commonly known as the lying-in period during which the mother should remain strictly in bed; (2) this is followed by the period of about four to six weeks during which she may be permitted to be up and walk about as her strength will permit; (3) the third is a period of about six or eight months at the end of which involution should be completed.

Among the important conditions to consider in the early part of the lying-in period are shock, hemorrhage and lacerations.

If hemorrhage is due to lacerations of a size to justify suturing this should be done. After eliminating the possibility of particles of re-

tained placenta a great many cases of hemorrhage will respond to massage or firmly grasping of the fundus with the hands. Ergot and pituitrin have both been of service in these cases.

Some physicians give an unfavorable report on ergot in that after-pains are worse following the use of this drug. Pituitrin has been praised by many and condemned by a few because of its violent action and cumulating effects. So far as I know calcium lactate and coagulating serums are not used to control this type of hemorrhage. Packing of uterus and vagina has been used many times when ordinary remedies fail to control hemorrhage.

Various stimulants are of use in the treatment of shock and general weakness. Among these may be mentioned caffeine in the form of strong hot coffee. Atropine and strychnine hypodermically are sometimes helpful.

The above mentioned duties and others incidental to this early period having been completed the mother and babe are properly bathed and clothed. An abdominal binder should be applied and worn until tone is restored to the musculature of the abdomen.

Absorbent changeable pads sufficient to take care of the lochial discharge are applied and when available should be supported by rubber sheet.

A thorough cleansing of mother's breasts and nipples also the baby's mouth is of great importance to each. The breasts should be supported with a binder in all cases. Massage with hot or cold applications is helpful when congestion and pain are present. Should a fissure of the nipple occur a silver preparation is indicated. The author of this paper has observed in an otherwise healthy young woman one case of inverted nipples to the extent that nursing was impossible.

A rest period of from four to six hours should be prescribed for the mother before the baby is permitted to nurse, unless some special reason prevails to the contrary. Codeine or bromides may be used to induce rest if the patient is very nervous.

The early establishment of regular nursing periods should be encouraged. Four hour intervals with one feeding omitted in latter part of the night is applicable in many cases.

It is advisable for mother to change positions while in bed, lying on either side and the back or occasionally lying on face for a few moments with the hope of securing better uterine drainage. If a competent nurse is in attendance a hot antiseptic daily douche should be recommended; otherwise omitted. Moderate elimination through bowels and kidneys

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should prevail. If necessary use laxatives and diuretics.

In all malarial sections fifteen grains of quinine daily for ten days should be given unless contraindicated. The patient should remain in bed until lochial discharge changes from a bloody to a mucous character.

During the second period the mother should be advised to do only such light work as pertains to her personal care and that of her infant. This is a suitable time to offer suggestions of correct living, such as sanitation, hygiene, fresh air, good feeding, rest, etc. An occasional examination to ascertain if local conditions necessitate attention would be a good rule but is usually neglected.

The third period of six or eight months is of less importance than the rest, the doctor being consulted only when some special condition presents itself for his care. However this period should not be considered ended until the mother is restored physically and mentally to her normal condition.

#### HEALTH OF SELF-SUPPORTING COLLEGE STUDENTS

The health of the self-supporting college student was studied by R. W. Bradshaw, Oberlin, Ohio (*Journal A. M. A.*, June 2, 1928). Of the 420 self-supporting students, 306, or 73 per cent., made 1,202 visits to the student clinic for consultation and treatment. This represents a rate of 2,862 clinic visits per thousand of self-supporting students. Of the 1,253 independent students 697, or 56 per cent., made 2,515 visits to the clinic, which represents a rate of 2,007 visits per thousand of non-self-supporting students. The self-supporting students from this point of view therefore suffered from 43 per cent. more illness than the independent group. In the group of 420 self-supporting students there occurred 250 upper respiratory infections sufficiently severe to bring the student to the health service for treatment. In the group of 1,253 non-self-supporting students, there were only 546 similar infections, the former giving a rate of 595 per thousand and the latter 436 per thousand. That is, the self-supporting group suffered from a 36 per cent. higher incidence of such respiratory infections as colds during the year than the non-self-supporting group. Per thousand the self-supporting group spent 1,269 days in the hospital, while the rate per thousand for the other group was only 947. The self-supporting group, then, spent 34 per cent. more time in the hospital than the independent group. The 233 self-supporting men spent 153 days in the hospital, a rate of 657 per thousand, while the self-supporting women (187) spent 380 days in the hospital, a rate of 2,032 per thousand, or more than two days per person and more than 300 per cent. of the time spent by the self-supporting men. When the two groups of women are compared, one finds that 810 non-self-supporting women spent 970 days in the hospital, representing 1,197 days per thousand. This is only 59 per cent. of the time spent in the hospital by an equal number of self-supporting women.

#### WASHINGTON UNIVERSITY CLINICS

##### THE FACTORS OF CHRONICITY IN PEPTIC ULCER \*

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Experimental and clinical observations show that a varied combination of several factors exists in the etiological process of peptic ulcer. Greater importance must be given to those factors which impede healing than to those which initiate the tissue defect. Control of the former is essential for the cure of the ulcer syndrome.

Fremont-Smith and McIver,<sup>1</sup> and McCann<sup>2</sup> note from their reviews of the literature the uniform success in the experimental production of acute ulcer in either the stomach or duodenum, and also the difficulty to get the deep punched-out ulcer, such as is found in the human subject, unless the initial lesion is accompanied by some impairment in the motility and chemistry of the gastroduodenal segment.

The essential conception of the tissue change in peptic ulcer is of three phases: first, a break in continuity through the mucous membrane; second, the digestive removal of the destroyed tissue; third, the inflammatory reaction and the accumulative callous induration. The manner of occurrence of the first stage or of the initial break in the mucous membrane has overshadowed consideration of other etiological factors for chronic clinical ulcer. Cohnheim long ago stated that "there must be in addition [to the initial defect] an unknown something which prevents the healing of ulcer."

The digestion phase will operate in a stomach which is fully normal otherwise than for the mucosal break. Up to this point in the formation of an ulcer, it is the break in the mucosa and its initiating cause,—and this may be altogether casual,—which constitute the sole elements of pathology. Free of interference, this wound will heal. This potentiality of healing is dominant in the tissues and must be actively impeded for a progression of the lesion into a symptomatic clinical ulcer. This initial injury is important because digestion of the stomach wall will only occur upon a preceding injury.

The prompt repair of a large niche and even of a penetrating pocket with favorable luminal conditions from medical management is repeatedly demonstrated roentgenologically. The healing of an ulcer even without direct atten-

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tion (excision, infolding, cauterization) after other surgical interference (gastro-enterostomy, pyloroplasty) is prompt. The healing of gastric and duodenal suture is prompt and uneventful. Even the borders of an ulcer may be sutured with good results (Leriche).<sup>3</sup> Marginal ulcers occur only from some accessory factor of chronicity. Only when the ulceration is secondary to the destruction by specific disease, such as syphilis, tuberculosis, lymphoma, or when the tissue shares the somatic inanition of anemias or kindred diseases is there a lowering of this cellular vitality.

Breaks through the mucous membrane of the stomach and the duodenum are accounted for by a variety of causes. Such acute ulcers are not rare. They are silent or give minor and transient symptoms, with the relatively few exceptions when they cause hemorrhage, perforation, or pylorospasm. Previous dyspeptic symptoms may have occurred from the focal origin if it is in the abdomen. Although gastric bleeding occurs in numerous somatic conditions and leads directly to the tentative diagnostic suggestion of ulcer, that lesion is very seldom demonstrated, or even found as a remote sequel. Even in case of hemorrhage these acute lesions heal promptly as an expression of the tissue's high faculty of healing, although in the presence of somatic disease. This supports the conception that ulcer depends essentially upon local factors. When the faculty of repair is persistently impeded, the ulcer becomes indolent and chronic with a variable train of clinical symptoms. These chronic ulcers may at times show an acute or urgent clinical syndrome, but the tissue's pathological process is of a chronic character.

Since ulcer begins as a small and anatomically trivial injury to the mucous membrane (from its surface or from the submucosa), and since without interference the healing of the mucosa is potentially great, we must conceive that interference by abnormal conditions is the deciding factor in the development of clinical ulcer, which is chiefly chronic. It is, therefore, of the greatest importance in the study of ulcer to analyze and evaluate the factors which impede healing. These may be called the factors of chronicity. They create a physiological impairment of the stomach as complementary to the anatomical pathology. It is probable that this physiopathological status usually exists independently and preceding the initial insult to the mucosa, and that it may be a factor in allowing that insult, whether it be of traumatic or of pathological origin. Boas<sup>4</sup> emphasizes that the reason for ulcer formation and de-

velopment cannot be found in any of the direct primary agents but rather in the conditions which favor the inception or hinder the healing of the defect.

The second phase of ulcer development is dependent upon proteolytic peptic digestion which is activated by hydrochloric acid. This acid thereby gains its dominant relation to the origin and persistence of chronic peptic ulcer. This relation would still exist even if the theories of "anti-pepsin" failure could be proven. That trypsin is the active proteolytic enzyme was proposed by Stuber<sup>5</sup> but the idea has since received little attention, doubtless because the clinical facts of ulcer center about the active acidity. Hyperchlorhydria, hypersecretion, and prolonged acidity are the constant accompaniments of ulcer; neutralization is the end sought by both medicinals and diet; the esophagus and jejunum are seldom ulcerated and the latter only after gastro-enterostomy for ulcer and not after the same operation for cancer; experimental round ulcer arises only when associated with an improper acidity and surgical efforts seek to reduce acidity and retention; achlorhydria is per se unaccompanied by ulcer, although in this state the barrier to ingested or surface infection is removed.

The works of Morton,<sup>6</sup> of Mann<sup>7</sup> and of McCann<sup>2</sup> give experimental proof that the essential physiopathology of the gastroduodenal segment for the development of ulcer is uncontrolled acidity of the gastric juice resulting from the various chronicity factors. This abnormal status of hydrochloric acid is occasioned by a hypersecretion, gastric hyperperistalsis or gastric retention. There is a failure in the normal control which restricts the quantity, duration, and activity of the gastric secretion to the needs of gastric digestion. The motor and the secretory mechanisms are closely coordinated in their nervous control and their functional disturbance occurs concomitantly. Finally, there occurs a failure of duodenal regurgitation, which is the safety mechanism for gastric neutralization. This failure of control of the acidity results from abnormal influences upon the body of the stomach, upon the pylorus and the duodenum. These influences arise from extrinsic and intrinsic factors.

The extrinsic factors arise from a hygienic lawlessness of which many patients are honestly unaware. The recurring cycles of the digestive function become more or less disordered by improper and irregular diet, by erratic hygiene, by bodily fatigue accumulated from emotional stress, from excessive application to sedentary work, from the lack of sleep, and

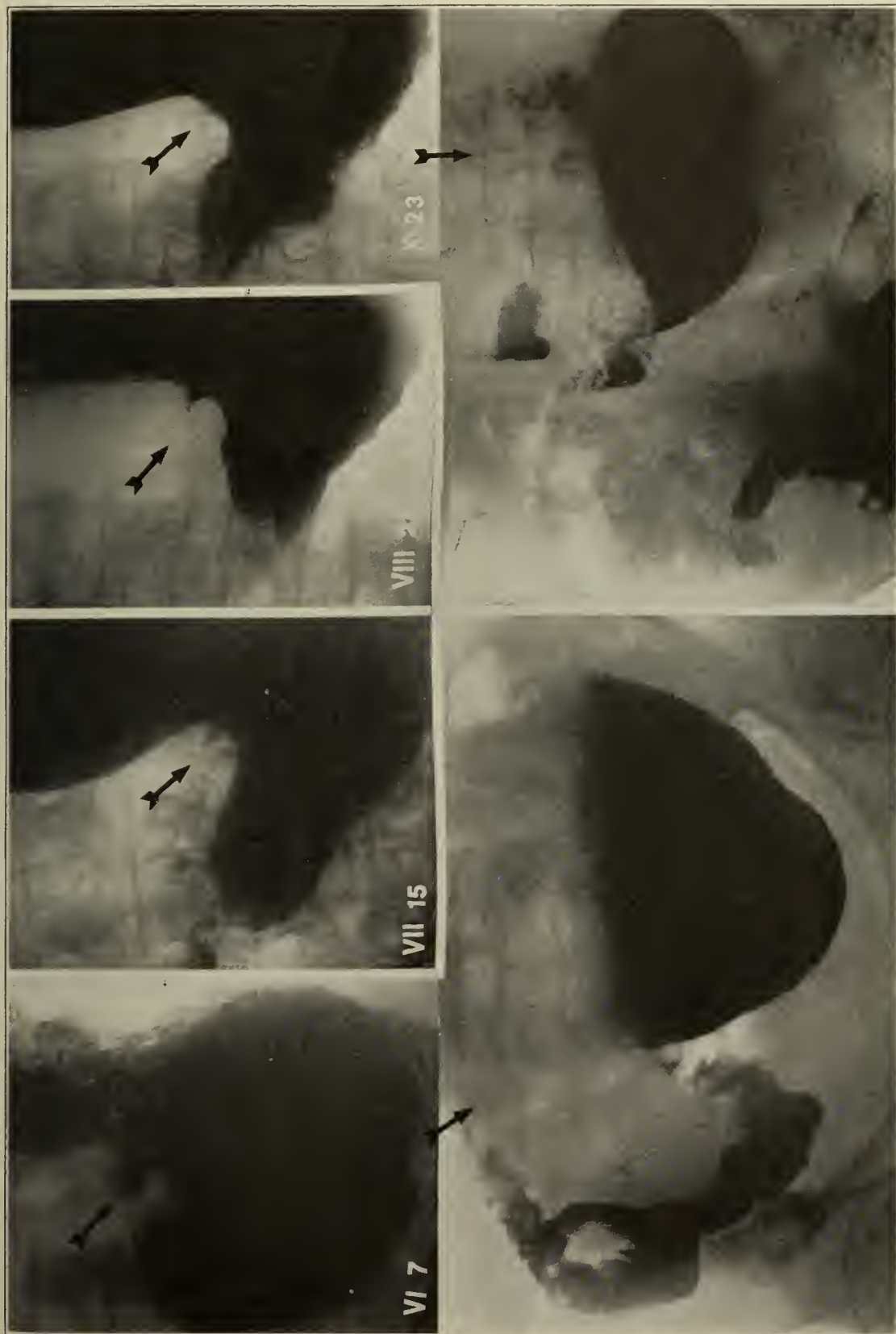


Fig. 1. Roentgenograms made during the medical treatment of the case which is reported in abstract in the paper. They demonstrate the progress of healing of the ulcer under the protection of antacids and proper diet, but without correction of the impaired gastric motility, which was here due to a mechanical partial pyloric obstruction. Although the tonus of the stomach was much improved on October 23, there still remained a large six-hour residue (lower right) comparable to that of the original examination (lower left) of June seventh.



from other dissipation, and by the abuse of tobacco and alcohol. Smoking has been attributed a large role in the induction of pylorospasm by the observations of Gray.<sup>8</sup>

The dominant anatomical and physiological position of the pylorus in the cycle of normal gastric function is obvious and its physiological derangements are shown to be determining factors in the syndrome of chronic ulcer. Control of the acidity of the stomach and of the discharged chyme by the pylorus is the significant point of view in physiopathology. The status of the pylorus allows or prevents operation of the duodenal regulation of gastric acidity.

Irritability of the pyloric sphincter interferes with the normal relaxation at the end of digestion. This increase of tonic posture tends to persist and the hyperacidity due to this heightened tonus further increases the irritability. A vicious circle is established eventuating in spasm. Hydrochloric acid stimulates the peristalsis of the fundus but inhibits that of the antrum and therefore the antral-pyloric emptying mechanism. The myenteric reflex responsible for this control is very sensitive to hydrochloric acid (as well as to other mechanical and chemical irritants). It also is affected directly by the inflammatory reaction about a chronic ulcer infiltrating the plexus in a manner which irritates or interrupts the coordination. It is often indirectly disturbed by reflex irritation from remote points (appendix, etc.) or by autonomic nervous system instability. Smith and Miller<sup>9</sup> demonstrated that an irritant (croton oil) introduced into the proximal colon or into the appendix alone resulted in marked increase in the activity of the stomach. Monroe and Emery<sup>10</sup> were unable to affect the emptying time of the stomach by turpentine irritation of the colonic mucosa.

Fowler<sup>11</sup> and his associates found an equilibrium zone for gastric acidity and stated that it is partially or totally lost in disease. Mintz<sup>12</sup> states that the stomach tends to maintain a definite strength of the acidity which he calls "its leveling capacity." He finds explanation for the phenomena of duodenal ulcer in the failure of this faculty. Katsnelson<sup>13</sup> has shown that gastric hyperperistalsis follows the presence of concentrated hydrochloric acid (0.5 per cent) in the duodenum.

It is found that duodenal regurgitation occurred in fasting dogs when the acidity approached 0.3 per cent. That this mechanism is normal in the sense that it terminates each digestive cycle rather than being brought into action by casual or chronic impairments of the normal secretory cycle is unproven and unlikely. It, however, loses none of its im-

portance in the ulcer problem because of this. McCann<sup>14</sup> has recently shown that duodenal regurgitation is not the essential mechanism for controlling the gastric acidity, but that, after secretion has been adequate for the food, its rate diminishes and its residual quantity is combined by the mucus. This better suits physiological necessities, for it is strange to find secretion stimulated essentially by digestive demands and not suppressed by the same neuro-hormonal-secretory mechanism when the demand passes. The excessive secretion of acid beyond digestive requirements in quantity and in time is physiopathological.

Olch<sup>15</sup> has experimentally demonstrated, and Elman<sup>16</sup> clinically, the more prompt neutralization of the gastric acidity after gastro-enterostomy. The importance of their observations cannot be overemphasized. Their application as indicating surgery must be cautious. It will be of interest to see when, if at all, the acid test meals will demonstrate restoration after clinically successful medical treatment. This is being studied in our clinic. Such studies may not demonstrate alone the restoration of the pyloric mechanism, but conceivably could also demonstrate cases in which the clinical well-being of the patient is false to the persisting derangement of physiology. Hurst and Venables<sup>17</sup> have shown an increase in acidity after successful clinical results.

The term peptic ulcer includes both duodenal ulcer and gastric ulcer. These ulcers are similar in physical and anatomical characteristics and especially in histology. Variation in the gross characters is shared alike by gastric and duodenal ulcers, with greater dimensions permitted to the gastric lesion because of its site and with the significant exception that the gastric ulcer may become malignant. The differences in the clinical manifestations of these ulcers are due to the different reactions of their proper segments. Duodenal ulcer has a restricted location in an area of the organ which functions chiefly as a channel. It, therefore, varies little in its manifestations, and its symptoms give a classical picture easily recognized and seldom mimicked. Gastric ulcer has a relatively larger area for location with more varying influences upon the different functions of that segment. Its symptoms are, therefore, much less characteristic and are often mimicked by purely functional disturbances, making clinical diagnosis more uncertain. The rarer juxta-pyloric or pyloric ulcer is not anatomically different except in site, and because of that, as will appear later, in its clinical manifestations.

Among the differences between duodenal ulcer

and gastric ulcer is the greater incidence (almost total) of hyperchlorhydria in the former, and the frequency (almost one-half) of lowered acidities in the latter. Gastritis of a chronic type is the explanation often given for this lowering of the acidities, but it is not an essential cause. Residual gastric secretion, found in the fasting stomach and in the interdigestive phase, in excessive amount is abnormal and is of great significance among the antecedent chronicity factors for gastric ulcer.

In gastric ulcer not directly involving the pylorus the stomach is hypotonic rather than hyperperistaltic. Secretion is less active and the safety mechanism or duodenal regurgitation is available through a relaxed pylorus. Schlesinger (quoted by Klein)<sup>18</sup> believes that an ulcer produces a reflex gastroparesis that affects both the pylorus and the entire stomach. This status is however reversed if the pylorus is involved. Mills has shown that distal to a lesion the alimentary tract is hypotonic and hyperperistaltic proximally. This explains how, with gastric lesions which do not involve the pylorus, there is a relaxation of the antrum and pylorus and a lowering of the acidity. A gastric ulcer which involves the pylorus stimulates a gastric muscular reaction and also the secretion. The usual (with gastric ulcer) hypotonic influences are overbalanced. In duodenal ulcer the usual heightened tonus and peristalsis, which occur proximal to the lesion and therefore in the stomach, result in gastric hypermotility and hyperacidity.

The rapid gastric emptying in duodenal ulcer cases is significant. It has been considered that the hyperperistalsis of the stomach, usual to duodenal ulcer, overcompensates by *vis a tergo* a hypertonus (spasm) of the pylorus. Pylorospasm, however, does not occur in early simple duodenal ulcer without direct involvement of the pyloric ring and muscle. The gastric hypermotility in duodenal ulcer allows the gastric secretion to appear in its absolute secretory concentration. This persists because of the hypersecretion (prolonged) which accompanies the reaction. The corrosive action of the acid demonstrated by Gallagher<sup>19</sup> may therefore precede the digestive action of the succus gastricus.

From these considerations, it is evident that duodenal ulcer may be caused by gastric hypersecretion and hypermotility which arise from intrinsic and extrinsic influences, and which allow the forceful and prolonged bathing of the duodenal bulb by acid gastric chyme. This condition is resisted by the alkaline potentialities of the duodenal fluids. This being overbalanced, the uncontrolled hyperacidity does of

itself produce ulcer. This, more than mechanical and vascular factors, explains why the first portion of the duodenum is the seat of ulcer. An ulcer may be initiated by a traumatic or pathological defect upon the antecedents of the chemical imbalance before that alone would cause the ulcer. The ulcer, by its presence, aggravates the gastric secretory and motor disturbances. Irritability and spasm of the duodenal bulb from ulcer prevents the neutralizing action of the duodenal juices in that portion and, together with pylorospasm, which results reflexly from remote sources or from juxtaposition of the ulcer, will establish the abnormal chemistry by obviating entirely the safety duodenal neutralizing reflux into the stomach. The ulcer will progress fortuitously according to the anatomical changes in the lesion, and may eventuate in penetration, hemorrhage, perforation, or when the syndrome has remissions, as is characteristic, the recurring healing fibrosis and periduodenitis produces an induration and mechanical pyloric obstruction.

Gastric ulcer occurs by a somewhat different chain of circumstances. The prolonged and uncontrolled action of the gastric chyme even with low acidity, rather than an hyperacidity is the fundamental chemical derangement. It is improbable that the chemistry is ever the active agent in initiating gastric ulcer as it may be in duodenal ulcer. However, factors which disturb the restriction of gastric acidity and secretion to the period of the digestive phase are fundamental. Among these are, first, the irregularities of ingestion in time, in quality, and in quantity which obviate the conditioned reflexes of (appetite) secretion; second, the hypotonicity and hypomotility from emotional states, chronic fatigue, and sedentary debility, and from certain precursory intrinsic disease (gastritis), and the effect of traumatic and pathological wounds. It seems more probable that any wounds to be effective should follow upon the ground work of a functional prolongation of gastric acidity. Neutralization by duodenal regurgitation also functions here as a safety mechanism. It is favored by the hypotonicity of the pylorus which results from the proximal lesion interrupting the neuromuscular continuity of the stomach. The pylorus is not irritated in gastric ulcer unless by juxtapyloric ulcer or by extension of the perigastritis. Pylorospasm, then resulting, obviates the duodenal safety regurgitation and hyperacidity supervenes. The improbability of chemical initiation of gastric ulcer and the early free duodenal reflux through an undisturbed pylorus are reasons for the less frequent occurrence of gastric ulcer than duodenal ulcer.



The severe night (2 a. m.) pain of ulcer, whether of gastric or duodenal ulcer, evidences the complete interference with duodenal regurgitation, usually by pylorospasm.

The clinical study of ulcer remains embarrassed by the prejudice against dual diagnoses, yet there often appears in the diagnostic findings reason to think of two separate but related processes. The clinical association of appendicitis and cholecystitis with peptic ulcer is frequent. In an analysis<sup>20</sup> of 345 cases of ulcer (293 duodenal, 52 gastric), 414 cases of cholecystitis with 194 cholecystectomies, and 542 instances of appendiceal disease with 110 unassociated appendectomies and 248 associated appendectomies, it was found that of the ulcer cases 18 per cent had had a previous appendectomy, another 40 per cent showed definite X-ray evidence of appendiceal pathology. The appendectomies which were followed by ulcer have occurred chiefly in the years (25 to 35) after the peak (at 20) of the age incidence curve (15-25) for unassociated appendectomies, and have averaged 7.6 years prior to my demonstration of ulcer or for two-thirds of these appendectomies, the interval was 3.7 years. This was a selected and not a consecutive series of appendectomized cases,—selected because of the occurrence of subsequent disease and among them were by the anamnesis a majority of unmistakable cases of acute appendicitis and valid chronic cases. Those appendectomies which occur late in the usual period of unassociated appendectomies are more likely to be followed by ulcer. These cases have carried an appendiceal disease through and beyond the usual period of appendicitis, delaying or failing of operation until an abdominal syndrome is established which later manifests itself as ulcer. To explain this upon the basis of transferred infection is attractive, and the lymphatic and circulatory drainage of the appendix into the upper abdomen offers such avenues. However, it is more probable that this localized disease disturbs the gastroduodenal segment reflexly and alters its motility and chemistry in a manner to favor peptic ulcer. Cholecystitis has occurred in but 4.9 per cent of ulcer cases and while there is reason to discount any direct etiological connection with ulcer, Baumgarten<sup>21</sup> has shown that the influence of cholecystitis especially with pericholecystitis and periduodenitis is unfavorable to a coexisting ulcer.

In applying these considerations to the treatment of ulcer it is emphasized that treatment can be adequately conceived only after full diagnosis of the anatomical and physiological

status in each case of ulcer, together with an assessment of the general systemic factors and associated disease, and of the personal habits of the subject if not also of his personality.

The clinical examination, including chemical and hematological studies, in many cases allows the diagnosis of ulcer but seldom more. Occasionally the ulcer may be localized, and rarely its degree of penetration estimated. Roentgenological examination opened a new era in the diagnosis of ulcer. Premises have rapidly formed which dictate either medical or surgical treatment, and leave a very limited borderline of debatable cases. It has made it possible to select without trial and failure the true medical cases from those surgical. It allows the replacing of the classical ulcer regimes by individualized measures. From the surgical standpoint, it has transformed a virtual exploratory laparotomy—for the presence of ulcer, its site, extension, and the technical procedure—into a direct operation for ulcer. The roentgenological diagnosis of ulcer still includes some uncertainties; the distinction between cancer and ulcer except in typical cases is not absolute. Roentgenological reobservation with medical treatment, however, allows further differentiation. Generally, roentgenology shows more than any other method the presence of ulcer, the degree of penetration, the extension into the walls and the general functional status of the gastroduodenal segment. The shift of greater relative statistical incidence from gastric to duodenal ulcer is an example of this diagnostic help.

In considering treatment, there exists the most favorable fundamental circumstance that the tissues are cytologically healthy and awaiting the opportunity to heal. It is a correct and helpful conception that the healing of the local lesion, although of first consideration, is not of greater importance. Control and correction of the syndrome of chronicity factors are necessary to establish the cure. Healing of the ulcer does not signify physiological restoration nor bring it about.

Primarily, control of the acidity will provide the opportunity to heal and justifies direct active neutralization. This alone will initiate the repair processes in all except the most extensive patho-anatomical lesions, and if neutralization can be maintained the repair, in many lesions, may become complete. Without extensively discussing the advisability of alkalization treatment, it may be said that between the free use of antacid as advocated by McLean<sup>22</sup> and his associates, and the dependence wholly upon diet as advocated by

Alvarez,<sup>23</sup> Block and Serby,<sup>24</sup> and Bennett and Moncreiff,<sup>25</sup> there is a logical use of neutralization in the early urgent stages and a greater and increasing reliance upon dietetic protection in the subsiding and convalescent stages of the ulcer syndrome. The dangers of alkalosis from direct neutralization can be overemphasized. Balint<sup>26</sup> has proposed the conception of an ulcer diathesis resulting from an acid condition of the blood and tissues above normal. This does not lessen the significance of the surface conditions.

On the basis of the improvement gained by neutralization and by emptying the stomach, several systems for the treatment of ulcer have been popularized, the most notable in this country being that of Sippy. Individual ulcer syndromes are readily recalled in which this has been most serviceable. However, from this and the older systems (Lenhartz and Von Leubbe) wherein a period of bed rest with restricted progressive diet and medication are fundamentally important, comes the most unfortunate inference that ulcer treatment can be standardized. Such systems by general and indiscriminate application to ulcer per se have worked much harm in retarding the individualization of treatment. They may now be relegated to the treatment of the complications of ulcer. Many of these systems were established prior to the roentgen era, when diagnosis admitted little discrimination between ulcer cases. So great has been the influence of these systems that even now apologies are made for the ambulatory management of any ulcer cases. Ambulatory management has been the practice in our clinic since it was established by Myer and Mills twenty-five years ago, and has been found completely adequate in a majority of cases, which were readily selected. It has spared a large waste of effort and time to both the clinicians and the patients and has avoided making the patient neurasthenic and an invalid.

The diet of ulcer must be adjusted to the physiological disturbance, it must not increase the gastric acidity by addition or stimulation, but should by dilution and absorption diminish the acidity; it must not exceed the motility of the stomach either by its quantity or character and thus prolong the digestive phase. The quantity of its fluid components should be reciprocal to the amount of retained fasting secretions. Its quantity should meet the caloric requirements of the patient even if the patient must be put at rest to reduce these requirements. It must have regularity in time, which will reestablish recurrent functional cycles, and restore the interdigestive quiescent phase. This

means that the larger diet of convalescent ulcer must be followed with careful regularity long after the subjective and clinical evidences of ulcer have disappeared. The diet of ulcer may be a liberal livable diet and need be greatly reduced only for the acute phase or for the complications of ulcer. The patient usually will gain in weight. The accessory instructions to the ulcer patient are of the greatest importance; he should neither smoke nor use alcohol, physical recreation by bodily repose or exercise as may suit the case is advisable, relief from the strain of worry and fear is desirable, and the manner of eating should be leisurely and careful.

The personal character and intelligence of the subject of ulcer is equally important to both the medical and the surgical measures. Unfortunately, health is measured by a large portion of the population as the absence of discomfort or of incapacity (handicap). Many have no grasp of health problems. Personal discipline or stability is likewise often absent. These factors not alone obstruct a continued regime but allow many acquired habits which in the first place initiate disease. On the one hand, patients become impatient and travel among doctors, and on the other they mistake quick relief for cure and disregard convalescence. With ulcer cases, recurrent activity of the lesion occurs, constituting the classical periodicity of the syndrome. Unfortunately, the discomfort of ulcer, especially of the uncomplicated or of the surgically compensated ulcer, is promptly tractable. Pain relief is spectacular and the patient has no spur other than his thoughtful cooperation to the physician's efforts for the pursuit of treatment. This is a very real and great handicap to any treatment of ulcer. Until the physiological restoration of the gastroduodenal segment becomes a certainty of treatment, it must be considered, as Emery and Monroe<sup>27</sup> assert, that the person who has once had an ulcer, stands a much greater chance of having a recurrence than the person who has never had one stands of developing an ulcer. The convalescent care of ulcer must continue for years.

Economic status has often been used as an indication for surgical interference. The argument has been that many patients are unable to make a pet of an ulcer. The ulcer which is being petted and which limits earning power is in all probability either definitely surgical or is being overtreated by an unnecessarily restricted regime. Often diet is blamed for a failure which has been caused by other bad hygiene, smoking and indulgences. Inferiority of the patient in mentality and personal char-



acter is equally as serious a handicap to either the medical or the surgical ulcer. Wealthy patients may temporize with definite surgical problems but that is apart from the essential considerations. There should be no debate between medical and surgical treatment as such. There are rational criteria along which the selection of treatment can be made in common between the physician and the surgeon. Dogmatism in surgical and medical measures will always be a two-edged sword doing harm in over-application and obstructing acceptance for proper use by the bad results of ill-advised application. Successful radical surgery cannot always be accepted as necessary surgery. Clever operators accomplish many feats which certainly cannot be advised as routine procedures even if accepted as useful special measures. Kelling<sup>28</sup> well states that the expression "operation of choice" can be valid only for a certain case.

The following case demonstrates the separate importance of the ulcer lesion and the factors of chronicity. An elderly man of 67 years, who had had for 4 years a persistent indigestion with pain soon after meals and at night, relieved by food or soda. There was no nausea or vomiting but much belching with heartburn. There was visible gastric peristalsis over the epigastrium. Roentgenologically there was a penetrating ulcer at the juncture of the pars pylorica and pars media on the lesser curvature, with perigastritis and fixation of the stomach, and a secondary organic stenosis of the pylorus. There was a large amount of residual secretion in the fasting stomach, and the barium meal was not evacuated within 48 hours; marked gastrectasia had developed. Because of a business consideration this patient would not consider operation prior to three weeks following the diagnosis. He was given a restricted diet and liberal antacid and soon described his improvement as being very excellent; he was infrequently having only some night discomfort. He promptly made a gain in weight from 114 to 129 pounds. Because of this symptomatic improvement he later obstructed operation with personal considerations, an invalid wife, etc. Although the risks and benefits of operation were weighed against the risks and recurrent invalidism of non-operation, the patient has to date declined other than medical treatment. He has continued to gain weight. The ulcer niche is closing, yet he cannot enlarge the diet nor discontinue the antacid. This case illustrates how the lesion may heal although the factors of chronicity—the ulcer syndrome—persist.

The healing of the ulcer lesion and the cure of its basic syndrome has been discussed in this paper upon the premise of simple uncomplicated ulcer, and not extended to include the complications of ulcer. That forms another chapter. It is considered that the complications of ulcer create intrinsic organic chronicity factors which require interpolated measures of treatment and constitute as it were a detour bringing the case back again to the applications of the medical principles discussed above.

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# HUMAN INFECTION WITH YEAST-LIKE FUNGI WITH ESPECIAL REFERENCE TO LABORATORY DIAGNOSIS

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Although organisms higher in the scale of life than bacteria have been recognized for many years as causes of human diseases, they have received relatively little attention in comparison with the bacteria, which are so much more frequently encountered. Their biological position, on the borderline between bacteria and the lower plants, has resulted in study both by medical bacteriologists and by botanists. This fact, and the comparative rarity of the organisms, has produced an almost inconceivable confusion in classification and terminology.

The higher organisms may be divided roughly into three large groups:

The first is that of the filamentous organisms. Although the classification of the members of this group is not entirely satisfactory, three classes are generally recognized: *Leptothrix* denotes those forms that appear as simple threads without branching; *Streptothrix*, those that appear as branching threads, and *Actinomyces*, those that appear in tissues as "sulphur granules" which are composed of radiating filaments with clubbed ends. Members of this last group form a branching mycelium in culture, and are the etiological causes of "lumpy jaw" in cattle and of the various forms of actinomycosis in man.

The second group is that of the *fungi imperfecti*, and includes most of the fungi which are infectious agents of human disease. In this group are included the etiological agents of epidermophytosis, thrush and sporotrichosis. Some authors also include coccidioidal granuloma.

The third group consists of the true fungi, of which there are many different classes. They are rarely encountered in human disease.

It is with the yeast-like fungi, which are members of the group of *fungi imperfecti* that this paper is concerned. The confusion in the classification of the yeast-like organisms may be seen readily by consulting several standard textbooks of bacteriology. Comparing the classifications of different authors it is possible to construct a table which will show that the same organism may be called by several different names, and, conversely, that several names may be applied to the same organism. The confusion may be further illustrated by listing the different names that have been applied to members of this group. Thus the terms *Blas-*

*tomyces*, *Cryptococcus*, *hormiscium*, *Monilia*, *Mycoderma*, *Oidium*, *pseudomonilia*, *parasaccharomyces*, *pseudosaccharomyces*, and *Torula* have all been used. In addition, in some of the older literature, *Coccidioides immitis* has been included in this same group. These names refer to botanical classifications that have been suggested by different authors and are not in most instances related to any association of the organism to disease.

The confusion is not limited to terminology alone, but is also complicated by the lack of agreement as to the criteria that shall be used for differentiation. The formation of mycelium, the production of endospores, and the fermentation of sugars are the characteristics most commonly used in differentiation. Since mycelium and endospores may form only after a prolonged period of cultivation on artificial media, and may vary with the composition of the culture medium, the delay and uncertainty in classification become apparent.

The question of classification is discussed by Castellani,<sup>1</sup> Brumpt,<sup>2</sup> Anderson,<sup>3</sup> and by numerous other authors.

From the standpoint of clinical importance the matter of classification need not be so complicated, since an accurate botanical classification is not necessary, and only such separation as will alter the treatment or prognosis is essential.

Yeast-like organisms have been encountered rather frequently in some conditions, and certain members of the group have been from time to time advanced as the etiological agent of various diseases. Thus, *Monilia psilosis* has been thought to be the cause of tropical sprue, although this claim has not been substantiated.<sup>4</sup> *Monilia albicans* has been very well established as the cause of thrush. Wachowiak and others<sup>5</sup> have thought that some relationship exists between intestinal moniliasis and psoriasis although they were not able to establish any direct etiological evidence.

The best known clinical entity in which yeast-like organisms are known to be the cause is blastomycosis, which exists under several forms. For this reason it has been chosen as a type and this paper will deal with blastomycosis in its various manifestations. The cutaneous form is the most common but pulmonary and generalized forms are also recognized. The term *blastomycosis* is a very general one, and signifies a diseased condition caused by a budding organism and includes the various members of the group that will be discussed in more detail later.

The first published report of blastomycetic infection in man was that of Busse<sup>6</sup> in 1894, but the first extensive study of blastomycosis was made by Ricketts<sup>7</sup> in 1901. He subdivided



the organisms into three groups, according to the relative proportion of budding forms and mycelia, but these groups were not correlated with any difference in the clinical picture. Stober,<sup>8</sup> in 1914, showed that each of these forms may be assumed by the same organism, and divided the organisms into two types. A study by Stoddard and Cutler<sup>9</sup> in 1916 gave the first correlation with clinical findings. Their most valuable contribution was the separation from other budding organisms of *Torula histolytica*, which has a predilection for nervous tissue and which causes a disease quite similar in its symptomatology to tuberculous meningitis. The pathological picture is that of a budding organism causing liquefaction of the surrounding tissues with little or no cellular reaction. Macroscopically the foci of infection have a characteristic gelatinous appearance. *Torula* infection of the lung has also been reported.<sup>10</sup> The diagnosis depends on the cultivation and identification of the organism from the spinal fluid. The organism reproduces only by budding, never forms a mycelium, and does not ferment sugars.

The remainder of the group (excluding true yeasts) cause the condition commonly known as blastomycosis but which Stoddard and Cutler prefer to call oidiomycosis.

The skin is the most common site of infection. The disease usually begins as a small papule or pustule that does not heal and gradually extends at the edges. In time a considerable area may become involved. The infected area has a characteristic granulomatous appearance, frequently with papillary projections, and a tendency toward healing in the center, and with miliary abscesses at the edge. Such a condition may persist with gradual extension for a number of years.

Systemic blastomycosis is occasionally encountered, and almost any organ of the body may be involved. Infection of the spine may simulate Pott's disease.<sup>11</sup> The clinical picture is that of pyemia, with irregular fever, malaise, loss of strength and weight, usually moderate leukocytosis, and, sooner or later, multiple abscesses. The diagnosis is made by the demonstration of the organism in pus from the metastatic lesions. Usually, when generalized infection is present, there is also involvement of the skin in one or more places. Generalization probably occurs through the blood stream and the organisms have in a few instances been recovered by blood culture; they have also been seen in sections of blood vessels.<sup>12</sup> The prognosis of generalized blastomycosis is poor and recovery is exceptional.

The lungs are the most frequently infected of all the internal organs and may be infected

without the involvement of any other organ, or they may be involved as a part of a generalized infection. While generalization can undoubtedly occur from long-standing skin lesions, Stober,<sup>8</sup> in reviewing the literature in 1914, found only three cases in which generalization occurred from cutaneous lesions and in these instances the cutaneous disease had existed for from seven to twelve years. He considers the lung to be the atrium of infection for most cases in which generalization occurs. According to his conception, the organisms are inhaled and first lodge in the bronchi resulting in a more or less localized bronchopneumonia. From this point the organisms pass into the blood stream and cause inflammation in other points, which may in turn act as secondary foci of dissemination. The lesions in the lungs are not unlike those of pulmonary tuberculosis but tend to be less destructive and cavity formation is not so common.

The diagnosis of cutaneous blastomycosis is commonly made by finding the organisms in the contents of the miliary abscesses. Pus expressed from an abscess is placed on a slide with a drop of ten per cent sodium hydroxide and sealed under a coverslip. On microscopic examination the characteristic round or oval budding organisms with a doubly contoured capsule and a granular cytoplasm may be seen. The possibility of the accidental presence of yeasts unrelated to the condition must also be considered before a positive diagnosis is made.<sup>13</sup> To establish a positive diagnosis, a bit of tissue must be removed from the edge of the lesion and studied histologically. In this way the focal areas of cellular infiltration, usually with giant cell formation, may be seen. The budding organisms can be seen in the infiltrated areas. Although the lesion is similar to tuberculosis there are generally more polynuclear cells than in a tuberculous process; finding the parasites makes the diagnosis certain.

Differential diagnosis must be made between tuberculosis, sporotrichosis and coccidioidal granuloma. Tuberculosis can be diagnosed by the absence of budding organisms and by injecting some of the tissue from the lesion into a guinea pig. This will result in the development of tuberculosis by the animal in which the causative bacillus can be demonstrated. Sporotrichosis is diagnosed by finding the spores in the discharges from the lesion and in the tissues. Coccidioidal granuloma shows a greater tendency to involve the lymph nodes, more commonly generalizes, and has a high mortality. Although the organisms, as demonstrated in the fresh preparations and in tissues, are similar in form to blastomycetes, reproduc-

tion takes place by endosporulation and not by budding, which makes differentiation possible. In cultures this organism always grows with the production of mycelium.

The diagnosis of pulmonary infection in the absence of other infected areas is difficult and always attended by some uncertainty. This is caused by the fact that yeast-like organisms are not uncommonly encountered in the mouth and in sputum. Hill<sup>14</sup> has found yeasts or yeast-like fungi in sixty per cent of the sputums examined. Since our bacteriological methods are inadequate for the differentiation of pathogenic from nonpathogenic strains, or even for the satisfactory identification of single strains, the added difficulties are apparent. Only the constant presence in sputum of budding forms in large numbers is significant, and only in the presence of other known lesions of blastomycosis can such a finding justify a positive diagnosis.

Cultivation of the organisms from the lesions if successful makes a more detailed bacteriological study possible, although this is usually not necessary for differential diagnosis. For culture, Sabouraud's maltose medium is most commonly used, a little pus from a milium abscess being streaked over the surface of the agar. Growth usually occurs at room temperature in two to four days but may not be observable for seven days or longer.

Animal inoculations have been used in attempts to separate the pathogenic strains from those that are purely saprophytic. Although infection of the animals has occurred in a number of instances it has usually been limited to a localized abscess at the site of inoculation. Occasionally generalization has taken place. Usually mice have been found to be the most susceptible animals. The success of this procedure has varied in the hands of different workers,<sup>8, 12</sup> and there is fairly general agreement that organisms of this group are ordinarily of low virulence. For example, Rabinowitch<sup>15</sup> inoculated animals with fifty strains of yeasts from various sources and found only seven capable of infecting animals.

The low virulence of these organisms has raised the question of the possibility of infection of unbroken skin. Many of the individuals infected do not know of any preceding trauma, but in a few instances infection has occurred at the site of abrasions. That inoculation can take place was demonstrated by Stober.<sup>8</sup> One of his patients developed secondary lesions where he had scratched his skin, and blastomycetes were found under his finger nails. It has also been suggested<sup>16</sup> that pul-

monary infection is usually secondary to some other pathological lesion of the lung.

The source of infection is rarely if ever satisfactorily determined. Stober<sup>8</sup> found that most of his patients lived in damp, unsanitary quarters that favored the development of fungi. From the walls and floors of some of these dwellings he was able to demonstrate budding forms of fungi but, because of the difficulties attendant upon identification, he could not be sure that they were etiologically related to the disease. These same difficulties also prevent us from having any knowledge of the occurrence of the organisms in nature. Infection by contact with a case, while theoretically possible, is certainly of such rare occurrence that it need not enter into practical consideration.

The treatment consists in giving potassium iodide in large doses. Vaccine treatment has been tried by some workers<sup>8, 16</sup> with apparent benefit in a few cases though the results were not uniform. X-ray therapy is frequently used for cutaneous infection although there are few reports of its efficacy. Desjardins<sup>17</sup> discusses the technic of such treatment but does not mention the clinical results obtainable. Hedge<sup>18</sup> reports the use of carbon dioxide snow on early lesions with good results.

In conclusion, yeast-like fungi have been suspected of having an etiological relationship to a number of human diseases. Blastomycosis, in which this relationship is well established, has been chosen as a type. This disease occurs in several well-known clinical forms, and is diagnosed by the demonstration of the causative organisms in discharges from the lesions and in tissues removed by biopsy.

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DIABETES INSIPIDUS AND WATER  
INTOXICATION

HAROLD A. BULGER, M.D.

Presented at the Friday Morning Clinical Conference at Barnes Hospital.

Few clinical conditions present such interesting features as diabetes insipidus. The disease was discovered in 1674 when Thomas Willis found a diabetic urine with an insipid taste, in contrast to the sweet taste of that associated with diabetes mellitus. Thus originated the name diabetes insipidus. The symptoms are occasioned by a defect in the mechanisms automatically controlling the body supply of water. The characteristic polydypsia and polyuria are not associated with any demonstrable abnormality of the kidneys and the dilute urine may be quite normal. For many years speculation as to the cause of the disease centered about the pituitary body. It was thought to be due to an overactivity of the gland until 1913 when the striking antidiuretic effect of pituitary extract was noted. Since then the condition has been produced in animals by removing the pituitary gland or by injuring the brain in certain regions near the hypophysis. Starling and Verney<sup>1</sup> have more recently made important advances in our knowledge of the relationship of this structure to the excretion of water by the kidneys. In the heart-lung-kidney preparation they found that the urine was similar to that of diabetes insipidus. If pituitary extract was added to the circulation the kidneys were again able to concentrate the urine. If the circulation in their preparations included the head the urine remained normal, provided the pituitary gland had not been removed.

Clinically, one finds many cases of diabetes insipidus associated with obvious intracranial lesions, such as primary or metastatic neoplasms or chronic meningitis. Occasionally it has followed fractures involving the base of the skull. Syphilis and epidemic encephalitis appear as common causes. Other cases present no evidence whatever of any intracranial disease and are usually classified as idiopathic. From this latter group some of the most surprising and interesting stories of the onset have been recorded. There are a few in which the onset was extremely sudden and associated often with some marked emotional disturbance. Weir, Larson and Rowntree<sup>2</sup> have described cases of this type. Their most striking example was the case of a farmer's wife who, one night when she had been left alone, became frantic with fear. While she was in this state of terror she developed extreme thirst. The polyuria did not start until some hours later. In others the symptoms seemed to follow the

deliberate drinking of large amounts of fluid. We have noted such a case in a man who insisted his symptoms started in a Russian prison camp where prisoners drank tremendous quantities of hot tea in order to keep warm. There are records of a remarkable family incidence of the disease but this is unusual.

Some especially interesting observations were made here on an Italian boy, 16 years old. His family history and past history appeared quite irrelevant. Extreme polydypsia and polyuria started when he was 13. The history of the onset was not satisfactory but his family stated that it followed a severe shock and burn from electricity. Nothing occurred at that time which even suggested epidemic encephalitis. He was of normal size, of stocky build and appeared quite well and healthy. His blood pressure was slightly elevated for his age, averaging 130 to 140 mm. of mercury. There was no evidence of organic brain disease and neurological examination was negative. The X-ray of the skull on two occasions was negative. The blood Wassermann was negative. Kidney function tests were normal.

Observation in the hospital showed he was excreting 18 to 20 liters of urine each day. This was more than an inconvenience; it was a real misfortune. A considerable part of his time was spent drinking and urinating. Time and again he had been punished at school because of his frequent visits to the toilet. The insatiable thirst, the incessant urge to urinate, the interruption of sleep with a distended painful bladder are symptoms which make these patients objects of pity. Their misfortune may constitute a serious economic problem. Two of our patients had difficulty in holding their positions because of the time consumed in drinking and urinating. Participation in social activities may be almost impossible. The patient under discussion had compensated somewhat by developing a huge bladder. He could thus urinate at less frequent intervals but had to pass very large amounts each time. He voided as much as 1750 cc. at one time, indicating a tremendous bladder capacity. The abdomen in the presence of a distended bladder resembled that of a pregnant woman.

This patient also presented symptoms suggesting a disturbance of heat regulation. His hands and feet were generally cold and markedly cyanotic. Shivering was almost continuous even in comfortably warm rooms. The body temperature remained normal. The explanation of these features is not clear. A possible cause was the great quantity of cold water being absorbed from the gastro-intestinal tract. The symptoms were never relieved, however, by administration of water at body temperature, although his dislike for warm water and

rather poor cooperation prevented a satisfactory determination of this relationship. Bulimia, another symptom encountered in diabetes insipidus, was quite striking in this patient. He had a voracious appetite. This again was probably an incident of the unusual caloric demand. The basal metabolic rate was normal.

Although pituitary extract subcutaneously is usually a specific in controlling the symptoms of diabetes insipidus, there are occasionally complete failures. Pituitrin was started in this case but the response was unsatisfactory. He was rather proud of his feats of water drinking and this failure was even anticipated. A state of water intoxication was predicted. Weir, Larson and Rowntree<sup>2</sup> have called attention to this condition. They produced it in dogs by administering large amounts of water, but more successfully by giving large amounts of water and pituitrin. The animals first showed restlessness, asthenia and salivation, then muscular twitching and ataxia. They finally became drowsy and later developed coma and convulsions. The investigators observed a similar condition in patients with diabetes insipidus who, at their solicitation, continued to drink large amounts of water subsequent to the pituitrin administration. After three or four hours they became quite ill and developed nausea, vomiting and severe headache. In some cases a definite ataxia appeared. We have observed what was probably an instance of water intoxication. A college professor with a urinary tract infection was instructed to force fluids. This he did with great zeal and vigor, taking 10 to 12 liters each day. On the fourth day he complained of severe headache and nausea, and became quite stuporous. Uremia was considered but the blood nonprotein nitrogen was normal. Excessive fluid intake was stopped and he rapidly returned to his former state.

During a period of over two months the polydipsia and polyuria of our patient with diabetes insipidus was not satisfactorily controlled with pituitrin. For the first few days the urinary output fell to 8 or 9 liters, then increased somewhat to 10 to 15 liters. One cc. of surgical pituitrin four times each day was no more effective than 0.3 cc. three times a day. Now and then during this period the patient was ill. Most of the time he had a haggard expression. He lacked the power to concentrate and his memory was extremely poor. Occasionally he had headache. Some days he had no specific complaints, on others he was nauseated, refusing his meals, and vomiting. The symptoms suggested a brain tumor but no localizing signs were found. They

seemed most probably to be due to water intoxication. It appeared that with a definite effort on the part of the patient the water intake could be markedly reduced. The situation was explained to him and his active cooperation obtained. He was given chewing gum as a possible aid in controlling any desire for water and as a basis for mental suggestion. This effort was instituted while he was taking surgical pituitrin 0.3 cc. three times a day. The urine output dropped immediately, averaging four liters daily during the first week. This was followed by a further reduction until he was voiding only 2 or 3 liters a day. With the decrease in fluid intake there was marked improvement symptomatically. The nausea and other symptoms disappeared.

A question repeatedly raised is whether or not some cases of diabetes insipidus represent abnormalities of thirst of the nature of a neurosis. This is suggested by the sudden onset in some patients. Symptoms stopped spontaneously within a few days in one of our cases. Pituitrin was discontinued in the case described above without any increase in urine output. There was therefore no evidence here that variations in diuresis were in any way related to pituitrin and it is suggested that this may have been an example of an abnormal thirst of neurotic origin.

Another extraordinary feature has been noted in our patients. They have been observed to gain 8 to 12 pounds in weight each day and lose a corresponding amount each night. One boy's weight averaged 108 pounds each morning and 118 pounds each night. The weight of another patient averaged 98 pounds each morning and 109 pounds each night. This phenomenon is possibly explained by the diuresis continuing throughout the night while the sense of thirst and the ingestion of water were diminished by the general depression related to sleep. A study of this diurnal increase of weight in one patient disclosed a ten per cent increase in blood volume. Curiously enough this was not attended by a decrease but by an increase in the concentration of protein and electrolytes of the serum.

In spite of the great abnormality of fluid balance of diabetes insipidus there are no characteristic alterations in the blood. We have noted a slight increase in blood volume but this is usually normal. The plasma protein was definitely elevated in the case described here in some detail, but again this is the exception rather than the rule. In spite of the great diuresis the electrolytes are preserved, for their concentration in the serum is quite normal. It has long been thought that calcium was mysteriously related to water excretion by the kid-



ney. Polyuria has been described in tetany. In our cases of diabetes insipidus the serum calcium was normal. Increasing the serum calcium with parathormone in one patient had no influence on the diuresis.

Diabetes insipidus presents one important problem of differential diagnosis which will bear special emphasis. Chronic interstitial nephritis will sometimes manifest a diuresis comparable to diabetes insipidus and must be excluded by careful examination of the urine and tests for kidney function. The treatment of diabetes insipidus consists almost entirely in controlling the symptoms by pituitary extract. Surgical pituitrin or pitressin may be used subcutaneously. If only one dose per day is used it is best given in the evening in order to secure the maximum antidiuretic effect during the sleeping hours. Sufficient response may sometimes be obtained by spraying the nasal mucous membrane with surgical pituitrin. Failures as illustrated above are rare. The treatment of the underlying disease in the secondary type may sometimes be important. Antiluetic treatment in the syphilitic cases may not be attended by much success in controlling their symptoms. The prognosis is often that of a primary disease to which the diabetes insipidus is secondary. Some patients have been known to live for many years without any impairment of health.

Barnes Hospital.

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#### ERYSIPELAS

In the case reported by A. Wilmot Jacobsen, Buffalo (*Journal A. M. A.*, Aug. 3, 1929), erysipelas streptococcus antitoxin given in large doses (the full adult dose was administered on each occasion) failed to cause clinical improvement. The temperature remained elevated, the rash continued to spread and the general condition grew steadily worse. The fact that adult doses were given to an infant weighing 20 pounds (9 Kg.) would seem to eliminate inadequate dosage as a factor in the failure of serum treatment. Nor can delay in administration or extreme debilitation of the patient be advanced as reasons for the failure. This is, in fact, one of those cases not infrequently seen and well recognized by men who have had experience with the use of antitoxin in erysipelas, in which antitoxin seems not to exert any effect whatever. On the other hand, blood transfusion on two occasions produced immediate and striking results. As there are probably many different strains of the streptococcus of erysipelas, one might expect the blood of one donor to be ineffective in a given case while that of another brought results. In a similar manner, failure of antitoxin therapy in a case due to an atypical strain of streptococcus could be explained.

#### TELLS HOW TO JUDGE TRUTH IN HEALTH ADS

Honest presentation of the health merits of a commercial product is perfectly legitimate, Dr. W. W. Bauer points out in an article in the current issue of *Hygeia* in which he tells how to use discrimination in judging health information.

Commercial firms that come to you openly and say "By your better health I profit financially and so do you; let's work together," are serving needs and wants, and as long as the advertising is honest and the source of the information is frankly stated there can be no quarrel with them. The health motive is secondary, but you know that it is secondary.

A powerful safeguard to advertising in the name of health is the work of the National Better Business Bureau. It exerts pressure through business channels to make the unscrupulous or careless advertiser respect the truth and stick to it in his advertising. Large periodicals are watching their advertising columns as carefully as they watch their news and literary departments.

#### ELECTROCARDIOGRAPH MAKES HEART WRITE

Making the heart write its own story of health or disease is the function of an instrument called an electrocardiograph, which is described by Gladys Lane in the January issue of *Hygeia*, the health magazine. Every modern hospital is now equipped with one and a portable model has also been perfected for use in a patient's home when his condition is too critical for him to be moved to a hospital.

The working principle of the electrocardiograph is that the heart muscles generate minute electric currents and that these electrical currents will affect a magnet. By means of electrodes attached to the wrists and the left ankle of the patient the heart contractions are conveyed to the instrument and the record is made on moving photographic paper.

Each tracing, or electrocardiogram, reveals definite information and a physician who has made a study of the subject can distinguish separate movements of the auricles and ventricles and can draw definite conclusions about the condition of the heart. The instrument is extremely valuable in following improvement or relapse in heart conditions.

#### IF YOU FEEL DEJECTED LEARN A SLOGAN

Slogans are advocated as an aid to a healthy mental outlook by James D. Weinland, who considers their effect and lists a number in an article in the January issue of *Hygeia*.

A good slogan can brighten our whole horizon, fill us with courage and be an emotional stimulus. It directs and holds the attention to a bracing thought. For instance when a man is down in the dumps it is comforting to think that "the men who try to do something and fail are infinitely better than those who try to do nothing and succeed," or that "there are more chances and opportunities in life than we know."

There are slogans hidden away in the world's literature that fit almost any mood or desire, says Mr. Weinland. Proverbs are rich in them. Poems are jeweled with them. Each person must select the ones that mean most to him. Used at the right time the words can penetrate like a sharp dart into a mood and dissipate it. They act like a bugle call marshaling the forces of our resolution and ordering them into action.

# THE JOURNAL

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MAY, 1930

## EDITORIALS

### THE HANNIBAL SESSION MAY 12, 13, 14, 15

After a period of twenty years the Association returns to Hannibal for its Seventy-Third Annual Meeting. The last meeting held in Hannibal was in 1910 under the presidency of Dr. Tinsley Brown, Hamilton.

The first day of the session, Monday, May 12, will be devoted entirely to the meetings of the House of Delegates and of the Council. The House will begin its session at 9:30 a. m., and the Council will meet at 1:00 p. m. The scientific sessions will begin at 8:30 a. m. Tuesday, May 13, and two sessions will be held on that day and on Wednesday and Thursday. The final meeting of the House of Delegates will be on Wednesday, May 14, at 3:30 p. m., the scientific program being curtailed on that day in order to permit the business of the House being completed. All meetings will convene in the meeting halls of the Elks' Club where also the commercial exhibits will be displayed.

On Tuesday evening an entertainment has been planned for the members which promises to be a most enjoyable occasion.

The golf tournament is scheduled for Tuesday and Wednesday, May 13 and 14.

Arrangements will be provided to guide members to the various places of interest made famous by Mark Twain. On another page\* we publish an illustrated story about Hannibal that members will find quite interesting.

The secretaries' dinner will be given on Wednesday evening, May 14, at 6:00 o'clock, in the Mark Twain Hotel. All secretaries are urged to attend this dinner.

Our guest for this session is Dr. Wm.

\*See page 255.

Gerry Morgan, Washington, D. C., President-Elect, American Medical Association, who will deliver an address at the evening session on May 14. At this session we will also hear the address of President Cotton and one by President-Elect Gayler.

The committees have practically completed all arrangements for the session and plan to make our visit to this historic old city one to be remembered for many years. The personnel of the committees follows:

#### GENERAL COMMITTEE ON ARRANGEMENTS

H. B. Goodrich, Hannibal, chairman; D. A. Barnhart, Huntsville; B. Kurt Stumberg, St. Charles.

#### LOCAL COMMITTEE ON ARRANGEMENTS

Howard B. Goodrich, Chairman; W. F. Francka and Eugene M. Lucke.

Committee on Hotels: W. F. Francka, Chairman; John J. Farrell and A. L. Shanks.

Committee on Registration: C. W. Hamlin, Chairman; H. L. Banks and I. E. Hill.

Committee on Exhibits: E. R. Motley, Chairman; W. P. Birney and W. H. Hays.

Committee on Golf: Eugene M. Lucke, Chairman; J. W. Hardesty and E. T. Hornback.

Committee on Auto Transportation: H. O. Daniel, Chairman; Harry B. Norton and P. J. Reichmann.

Committee on Reception: Charles E. Salyer, Chairman; J. N. Baskett, James C. Chilton, J. W. Hardesty and T. A. Roselle.

Committee on Entertainment: T. A. Roselle, Chairman; F. E. Sultzman and U. S. Smith.

### THE WIDOW'S FUND

At the Hannibal meeting Dr. Frank I. Ridge, Kansas City, chairman of a special committee, will report on the feasibility of establishing a Widow's Fund as a part of the activities of the Association but administered by a board of trustees elected by the members of the Fund. The committee has sent a comprehensive statement of the plan to all component societies for their information and action. Doubtless, most of the delegates will be prepared to act upon the proposition in accordance with the wishes of their county societies when the report comes before the House of Delegates. The following is an outline of the plan that will be submitted by the special committee:

#### THE WIDOW'S FUND

Rule 1. The name shall be "The Widow's Fund of the Missouri State Medical Association." Payments to be made in cash as soon as possible.

Rule 2. Any member in good standing not over 55 years of age is eligible.



Rule 3. Membership to be obtained by application and payment of assessment.

Rule 4. The initial fee shall be \$2.20 and each assessment thereafter shall be \$1.10, or pro rated.

Rule 5. The sum paid upon death shall be \$500, or \$1 for each member in good standing.

Rule 6. When the amount in the Fund is less than \$2 per member a replacing assessment of \$1.10 shall be levied on each member in good standing. Failure to pay assessment entails loss of membership.

Rule 7. Any member dropped can be reinstated only as if he were never before a member.

Rule 8. The Fund to be governed by a board of trustees and officers elected by the members of the Fund.

Rule 9. Meeting of the members to be held with the board of trustees at the time of the annual meeting of the Missouri State Medical Association and report made.

On another page\* in this issue is printed an application blank which members are urged to use and send to Dr. Ridge before the date of the Hannibal meeting. No money should be sent with the application as no assessment will be considered until the plan has been approved by the House of Delegates and complete organization established.

The special committee will also report upon the proposition to provide group life insurance for members of our Association and upon a plan for establishing a fund for memorial purposes through a Memory Fund. Money for the Memory Fund is to be contributed in lieu of sending floral offerings on the demise of friends whether members of this Association or not. The committee believes that members may be inclined to establish this fund by sending to it the amount of money they would otherwise have expended in the purchase of flowers. An engraved card conveying the sympathies of the giver of the money and of our Association is to be sent to the family of the deceased with the statement that the money is thus contributed instead of expended in the purchase of flowers.

\*Advertising page XII.

## HOTELS AND RATES AT HANNIBAL

Members are urged to make hotel reservations in advance of the date of the Annual Meeting so they can secure their rooms as soon as they arrive at Hannibal. Reservations should be made direct with the hotels. The Committee on Hotels, however, will be ready to assist any member who is unable to make satisfactory reservations direct. The chairman of the Hotel Committee is Dr. Howard B. Goodrich. The names of the hotels and rates follow:

Hotels	Single Without Bath	Single With Bath	Double Without Bath	Double With Bath
Mark Twain (Headquarters)			\$3.00	\$5.00
Conklin.....	1.50	4.00	2.50	5.00
Marion.....	1.25 and 1.50	2.00	2.50	3.50
Windsor....	1.25	1.50 and 2.00	2.00	2.50 and 3.00

## CLINICAL CONFERENCE OF THE ST. LOUIS CLINICS

The St. Louis Clinics will depart from its usual procedure in conducting postgraduate courses in the fields of medicine and surgery. A Clinical Conference which will take place in St. Louis, Missouri, June 9 to 21, inclusive, will consist of a series of lectures, demonstrations, clinics and round-table luncheon discussions on medical and surgical subjects of interest to the general practitioner. No attempt will be made to arrange the material in special courses, but it has been so selected and arranged that practically all fields of medicine, surgery and allied subjects will be included.

St. Louis is fortunate in the possession of two outstanding medical schools of the country with a wealth of unsurpassed clinical material. The present conference is offered to give the profession an opportunity of coming into close contact with this valuable material and the many excellent local clinicians.

The subjects have been selected with the specific idea of assisting the practitioner who wishes to refresh his mind on many of the common things which are met with in general practice. The luncheon round-table discussions which will be participated in by several clinicians noted in their particular fields should be very interesting and most valuable. In these discussions an attempt will be made to carry out the symposium idea so that the subject will be completely covered.

Clinicians of national and international prominence have accepted the invitation to participate in the conferences. This type of clinical conference has a distinct place in postgraduate medical teaching. We congratulate the St. Louis Clinics upon the recognition of this idea and upon inaugurating the conference which doubtless will be an annual event.

## FOUR-YEAR COURSE IN MEDICINE AT STATE UNIVERSITY NOT RECOMMENDED BY STATE SURVEY COMMISSION

The final report of the State Survey Commission to Governor Caulfield has been issued and contains a full exposition of the enormity of the undertaking that confronted the Com-

mission. For those who are interested in the problem of medical education and particularly the complete course of medicine at the state university, this volume sheds a great deal of light. The Commission was very definitely divided on the issue of reestablishing the full medical course at Columbia. The report calls attention to the fact that "the Missouri State Medical Association, on more than one occasion, has adopted resolutions insisting that adequate facilities be provided at Missouri University to enable a student to complete his four years of medicine." This faction also points out that medical schools keep their enrollment up to capacity and that a student finishing the two years offered at the State University cannot choose the school to which he wants to go for the final two years. His entrance must be arranged for by the school at Columbia. The faction also calls attention of the Commission to the fact that the school of medicine of the University has an organization for a four-year course, that there is a well-selected library and valuable laboratory equipment. This faction says that at the present time "the job of medical education is only being half done by the University."

Dr. George D. Strayer and associates, of Columbia University, New York, who were invited by the Commission to assist in making the survey, were very vigorous in the opinion that Missouri should have an adequate medical school, and in support of that view supplied various tables of figures showing what Virginia, Iowa, Wisconsin, and Michigan have done toward the development of state university medical schools located in smaller cities. They pointed out that during 1929 there were 459 Missourians pursuing medical education in the United States and that 55 per cent of them are in schools in Missouri while, in the four states mentioned, from 74 to 78 per cent of the prospective physicians are students in their own states. Dr. Strayer urges the establishment of a large state hospital at Columbia to serve the rural population of the state and to furnish clinical facilities for the medical school.

The other faction thinks that with two medical schools in St. Louis, one in Kansas City, Kansas, and one at the University of Iowa, there is no necessity for the expenditure entailed in establishing the four-year course. This faction points out that a state hospital in Columbia would be required to provide clinical facilities for the medical school, but because of the proximity of the schools mentioned the erection of such a hospital and the extension of the school to a course of four years were deemed needless. The faction seems to have entirely overlooked the extreme difficulty the two-year student encounters in entering desir-

able schools, not only in Missouri but throughout the country.

The Commission very definitely asserts that it has not adopted any of these recommendations. "It merely submits them for the consideration they merit." The Commission expressed the view "that if an endowment could be obtained which would be adequate to erect and support a hospital program at Columbia, the state should make the necessary appropriations to maintain and support the medical school at that institution."

The report shows many changes are needed in state institutions caring for the state's wards. Many recommendations are made and the report states that it is believed by good authorities "that most of the recommendations in this report can be carried out without changing the constitution." Capacity, safety, and facilities for the proper reception and study and care of patients were taken into consideration.

The first recommendation made was the establishment of a psychopathic hospital for the reception, intensive study, and treatment of as many patients as possible before committing them to the mental hospitals.

The survey discloses that there are 2,363 more patients housed than there is adequate capacity, to accommodate. To remedy this, additions are recommended for State Hospital No. 1, Fulton; State Hospital No. 2, St. Joseph; State Hospital No. 3, Nevada; State Hospital No. 4, Farmington; and the City Sanitarium, St. Louis. More adequate housing for doctors and employees is also suggested.

It was found that fire hazards in three of the buildings were very great, and recommendations for removing these were made. Plumbing in all hospitals with the exception of the City Sanitarium in St. Louis was found exceptionally bad. Recommendation was made for alleviating the conditions in the four institutions. Facilities for hydrotherapy, adequate refrigeration and kitchen equipment were also recommended.

Each hospital at present is renting land which provides beneficial employment for the patients and furnishes a large part of the food for the inmates. Of the thirty leases on land now in effect, 19 expire in 1930, 4 in 1931, 3 in 1932, 1 in 1933, and 3 in 1934. The report recommends that additional land be purchased to stabilize the support of these institutions.

The survey points out that the number of patients in these institutions is increasing yearly and that new hospitals will have to be erected when necessary. A recommendation that a fund be provided for the care of the mentally sick is made.

Average daily enrollment during 1928 at the Missouri State School, Marshall, was 797, and in 1929, 887. A survey on November 13,



1929, showed that there were 1,044 feeble-minded and epileptics in almshouses in 110 counties. At present this institution, maintained for the care of feeble-minded and care and treatment of epileptics is overcrowded, 29 women being housed in a basement dormitory. There are no hospital facilities for the acutely sick. Recommendations for relieving these conditions and for the state to give full support to the institution are made.

In regard to the Missouri State Sanatorium, Mt. Vernon, the report recommends that the state acquire the Jasper County Hospital, Webb City, and use it for advanced cases of tuberculosis and the present institution for incipient cases. One hundred twenty-five are now awaiting admission to the Sanatorium. It is recommended that the state give full support to this institution also.

A trachoma hospital to accommodate 75 to 100 patients is recommended.

The survey recommends that the state board of health be relieved of the licensure work now imposed upon it.

It is recommended that the expenditure needed on some of the projects be arranged over a ten-year period.

#### A FIVE-COUNTY MEETING FOR SCIENTIFIC WORK

Ways and means to promote and maintain the interest of members in the scientific meetings of county medical societies and stimulate attendance at these meetings are problems that each county medical society of meager membership is forced to overcome. All members of our association realize the difficulty which faces them in this matter. Any method that seems to help in a solution is one that we are anxious to present to the members. A consolidation of two or three counties by hyphenation has been tried but when the full activities of several societies are thus consolidated, they cease to be individual organizations and lose their identity at the annual meetings of the State Association. It is not wise for a county medical society, no matter how small the membership, to abandon its identity for the sake of increasing attendance at scientific sessions.

The three counties of Howell, Oregon and Texas organized for scientific work and hold meetings aside from their regular activities as individual units of the state organization. Similar meetings have been conducted by the counties of Crawford, Dent, Laclede, Phelps and Pulaski. The Postgraduate Committee has cooperated with the members in those districts and sent speakers to

assist in arranging an interesting program for the occasion.

One of the most successful of these efforts to carry postgraduate instruction to members in their own communities is the Five-County Medical Society in the southeastern part of the state. The counties forming this organization for scientific work are Butler, Dunklin, New Madrid, Pemiscott, and Stoddard. It has been functioning for over a year and has been well attended. Beginning with the first of this year the members asked the cooperation of the Postgraduate Committee in providing a program for each session throughout the year. The society meets every other month except in December. The first meeting this year was held in Kennett on March 12 and attracted an attendance of forty-eight physicians. To this meeting the Postgraduate Committee sent Dr. George Gellhorn, St. Louis, who spoke on "Treatment of Postpartum Hemorrhage," and Dr. W. F. Neun, St. Louis, who talked on "Anesthesia in Obstetrics."

We quote from letters of Dr. T. C. Allen, Bernie, recording secretary, and Dr. J. D. VanCleve, Malden, corresponding secretary.

"The scientific session was a rare treat. The lectures by Drs. Gellhorn and Neun were exhaustive and instructive. The next meeting will be at Bernie and we hope you can arrange as good a program for that meeting as we had for this."

"To say the meeting was a success is putting it a little weakly. Many of our men said this was the best meeting, the most profitable and most successful meeting they ever attended. It is to the Association and the Postgraduate Committee we owe a great deal of thanks and appreciation. We are looking forward with impatience to the next meeting."

The combining of five societies in a district for scientific work only seems to be proving the solution of the troublesome problem. This is a splendid instance of how the State Medical Association can cooperate with counties having small membership.

#### DR. WILLIAM HENRY WELCH

On April 8, the eightieth birthday of Dr. William Henry Welch, Baltimore, dean of American medicine, was celebrated by all the civilized word. The celebration began in Washington, D. C., where elaborate preparations were made. An address was given by President Hoover from Memorial Hall, Washington, in which the attainments reached and the service given to mankind by Dr. Welch were praised. As the influence of Dr. Welch has

radiated throughout the world, so his eightieth birthday was an event of world-wide recognition. Celebrations were held in many cities in this country and in London, Berlin, Leipzig, Paris, Tokio and Pekin.

Dr. Welch has exemplified what one man may attain when endowed with the real spirit of service, a spirit that possesses practically every physician in a greater or less degree but is found in him almost as the supreme ideal.

His record is written in the annals of Johns Hopkins University and has been impressed upon practically every real advancement that medicine has made in the last fifty years. He was preeminent in laying the foundation and developing the work which has become such a force in protecting the public health.

In St. Louis, the Johns Hopkins alumni met at a luncheon and sent congratulations to Dr. Welch. An intimate glimpse of Dr. Welch's methods of teaching medicine was presented in a paper by Dr. Ernest Sachs, St. Louis, delivered before the meeting of the St. Louis Medical Society, April 8, when an hour was dedicated to the occasion of Dr. Welch's birthday.\*

His many contributions to the medical world, his broad human sympathy, his unerring and earnest public spirit caused Dr. Welch to be held in esteem by all. His life of service has been based upon his creed:

What are the attractions of a career in life? They lie, do they not, in the opportunities the career offers for service to mankind, in the congeniality of the work and in its rewards. The profession of medicine surpasses all others in its opportunities for service to our fellow men. Besides this, there are manifold fields of activity, appealing to the most varied personal inclinations and aptitudes, be these practical or scientific. The rewards of success in medicine, even of the highest success, lie not in money; they lie in the intellectual pleasure which one gets from his work as a physician, in the consciousness of service, in the relief of suffering, and in the cure and prevention of disease.

\* See page 203.

### FAKE ANTISEPTICS

The campaign against fake antiseptics has been so effective that today food officials of the Food, Drug and Insecticide Administration, United States Department of Agriculture, state that labels appearing on preparations of this kind in interstate and import commerce are reasonably accurate. The Administration warns, however, that the labeling upon the package itself and the advertising in circulars, posters and periodicals is a different matter. The federal food and drugs act does not control such advertising.

Constant surveillance is kept over the labels of new antiseptics by the department to catch any fake or misbranded preparation as it ap-

pears. Of more than 1000 supposed antiseptic preparations examined by government chemists and bacteriologists during the past three years, less than 100 bore labels to which no exception was taken by officials. Two preparations were reported as containing live bacteria and many of the others were found not to kill or prevent bacterial growth. Many effective antiseptics were found to carry unwarranted curative claims on the label.

Because of the unwarranted advertising used by manufacturers of fake antiseptics, the Department of Agriculture has issued a booklet, "Fake Antiseptics and the Law." This exposes the methods of the fakers and tells how to beware of fake preparations. The booklet is available through the Food, Drug, and Insecticide Administration, United States Department of Agriculture, Washington, D. C., and will be sent free on request.

### NEWS NOTES

Dr. J. R. Bridges, Kahoka, Secretary of Clark County Medical Society, was appointed deputy state health commissioner for Clark County on April 1 for a term of three years.

The next meeting of the Missouri State Board of Health for the examination of applicants for license to practice medicine in Missouri will be held at the St. Louis University School of Medicine, 1402 South Grand Blvd., St. Louis, June 11, 12, 13, 1930.

On March 17 Dr. R. B. H. Gradwohl, St. Louis, was the guest of the El Paso County (Colorado) Medical Society at Colorado Springs, and read a paper entitled "The Schilling Differential Count, With Special Reference to Tuberculosis."

Professor Georges Portmann will give a five-week, intensive postgraduate course in ear, nose and throat surgery at the University of Bordeaux, France, commencing July 21, 1930. The course is open to American physicians. For additional information, write Dr. L. Felderman, Mitten Building, Philadelphia, Pa.

Drs. Alphonse McMahon and W. T. Coughlin, St. Louis, were the guests of the Central Illinois Medical Association at its meeting at Decatur, Illinois, Tuesday evening, March 25. Dr. McMahon read a paper on "The Heart in Hyperthyroidism," illustrated with lantern slides. Dr. Coughlin gave an illustrated lecture on "The Early Diagnosis and Treatment of Tumors of the Brain."



A golf tournament will be held in Hannibal while the annual meeting of the Missouri State Medical Association is in session. The tournament will be held on May 13 and 14 and will be an eighteen-hole handicap tournament. Each player is asked to bring his card stating his handicap and signed by the secretary of his club.

Dr. M. G. Seelig, St. Louis, professor of clinical surgery at Washington University School of Medicine, was appointed one of a committee representing the American College of Surgeons to observe the Coffey-Humber anti-cancer experimental treatments in San Francisco and Los Angeles. Dr. Seelig went to California early in April with the committee.

The Board of Curators of the University of Missouri relieved Dr. Stratton D. Brooks of the presidency of the State University by giving him a leave of absence until December 31, 1930, and in his place elected Dean Walter Williams, of the School of Journalism. Dean Williams will take charge of the university in June as acting president and will become president, January 1, 1931. During his long association with the State University, he has become widely known to the medical profession and has won the esteem and respect of our members as he has of the members of his own profession. Newspapers have paid him this tribute: "There is but one Dean Williams. Dean he is by title, Dean by service and Dean by seniority in that service, and Dean by right he will remain."

A blackmailing syndicate preying upon physicians of Philadelphia was disclosed recently. One physician charged that he had paid \$11,500 to protect his professional reputation although he denied being guilty of any illegal or unethical practices.

A detective working on the disclosure asserted that the "racket" had its inception in Chicago where underworld gangsters aided by lawyers obtained huge sums from physicians by concocting fraudulent evidence against them. In order to save their reputations the accused doctors would hand over the money, and once in the hands of the blackmailers, the victim was never through paying.

Scores of papers were exhibited which were said to reveal plots against other physicians in Philadelphia. Seven are under arrest and attempt is being made to round up the other members of the syndicate.

Lee F. Whittaker, the man who has been fraudulently collecting money from members for Fellowship dues to the American Medical Association, was arrested in Kansas City early in April. Whittaker solicited Dr. Frank I. Ridge to pay his Fellowship dues and accepted Dr. Ridge's check. Dr. Ridge had read the warning published in our April issue and caused Whittaker's arrest as soon as he accepted the check.

Beginning this year, the American Association for the Study of Goiter will award a cash prize of \$300 annually for the best original thesis dealing with some phase of the goiter problem. Theses should be submitted by June 1, to Dr. Walter M. Simpson, Chairman of the Essay Committee, Miami Valley Hospital, Dayton, Ohio. The award will be given immediately following the meeting of the Association to be held in Seattle, Washington, July 10-12, 1930.

Dr. Evarts A. Graham, St. Louis, professor of surgery, Washington University School of Medicine, will leave for Australia in June to give a series of six lectures at the University of Melbourne, dealing with chest surgery and conditions of the gallbladder. The lectures will be given on alternate days during the last two weeks of July. He will probably also visit New Zealand and speak to medical classes there. A number of students from the University of Melbourne have studied under Dr. Graham in recent years and for some time he has been urged to visit Australia. Dr. Graham's family will accompany him. They plan to return in September.

Dr. Curtis H. Lohr, Hospital Commissioner, St. Louis, has announced that some of the patients at the St. Louis City Sanitarium, the institution maintained by the City of St. Louis for mental diseases, will be transferred to state hospitals as soon as a survey is completed to learn how many patients the state institutions can accept from St. Louis. Hitherto, St. Louis has not exercised its right to send mental cases to state institutions preferring to care for them at the City Sanitarium. The overcrowded condition of the Sanitarium, however, has induced the Hospital Commissioner to take advantage of the privilege in order to relieve the congestion at the Sanitarium. Only patients who have no friends or relatives in St. Louis will be transferred to the state institutions. The City Sanitarium was built to accommodate 2,036 patients but there are now 3,260 in the institution. The number to be transferred is estimated at 250.



PROFESSIONAL BUILDING

A new building with special attention to the facilities for physicians and dentists has been erected in Kansas City and called the Professional Building. It is located on the corner of 11th Street and Grand Avenue in the heart of the shopping district, but arrangements are being made for ample parking space for the occupants. The building is sixteen stories in height and will be ready for occupancy on May 1. About eighty per cent of the space is already under lease. Only members of the Jackson County Medical Society and the Kansas City Dental Society will be permitted to occupy offices in the building, except for a few selected business firms on the first, second and third floors. Every modern facility for the convenience of the physician and dentist in caring for patients in the office has been provided. A Jackson County member visiting the office of the Association in St. Louis recently, expressed the opinion that a professional building in any city is a distinct advantage to the medical and dental professions.

The United States Civil Service Commission announces open competitive examinations for medical officer, associate medical officer, and assistant medical officer. Applications for these positions will be rated as received by the Civil Service Commission at Washington, D. C., until June 30. The examinations are to fill vacancies in hospitals of the Veterans' Bureau, the

Public Health Service, the Indian Service, and in other establishments of the Federal classified service throughout the United States. Competitors will not be required to report for examination at any place, but will be rated on their education, training and experience. Full information may be obtained from the Civil Service Commission at Washington, D. C., or the Civil Service Board of Examiners at the post office or customhouse in any city.

The University of Minnesota Medical School has issued invitations to a symposium on "The Kidney in Health and Disease." It will be held in Minneapolis, Minnesota, July 7 to 18. The announcement points out that no attempt will be made to present the complete accumulated knowledge of the kidney in health and disease but only those phases of anatomy, physiology and pathology of the kidney in which the knowledge has recently been extended, or in which investigative effort is intense. There is no registration fee for the course and the university offers to attempt provision of dormitory accommodations if registrations are made before June 1. All correspondence in regard to the symposium may be addressed to the Symposium, University Hospital, Minneapolis, or to Dr. Hilding Berglund at the hospital.

The League of Nations is undertaking an exhaustive study of the effects that motion pictures may produce on the eyesight of children and young people. The widespread use of the cinema with its possibilities for visual education in schools and colleges has prompted the investigation.

The study will seek to determine whether any disturbances of sight are provoked by watching a brilliantly lighted screen in absolute darkness, and the maximum time that a show can last before producing a tiring effect. The work is under the supervision of Dr. Lucien de Feo, director of the International Educational Cinematographic Institute of the League of Nations.

Dr. Thomas Parran, Jr., assistant surgeon-general of the United States Public Health Service, was appointed health commissioner of the State of New York by Governor Roosevelt, February 19, to succeed Dr. Shirley W. Wynne, resigned.

Dr. Parran was graduated from the Medical School of Georgetown University in 1915. He is well known to Missouri physicians, having served from 1921 to 1923 as director of the division of rural sanitation of the Missouri State Board of Health. Just preceding this service he had been in charge of the Tri-State Sanitary District of Kansas, Missouri and



Oklahoma. After completing his work in Missouri he was sent to the Illinois State Department of Health as director of county health work. In 1926, the Surgeon-General designated him as the representative of the United States in an interchange of public health officers in Denmark. In September of that year he was appointed assistant surgeon-general and given administrative charge of all venereal disease control activities of the United States Public Health Service.

Dr. Parran represents the League of Nations in the United States in connection with an international inquiry into the results of the treatment of syphilis, studies in which the Public Health Service and the Committee on Research in Syphilis are cooperating.

The first anniversary of the Springfield Clinical Society was celebrated by a birthday dinner, January 21, 1930, at the Kentwood Arms Hotel, Springfield. Twenty members attended the dinner.

The purpose of the organization is to stimulate greater interest in the various medical organizations, to pave the way for annual fall clinics where Ozark physicians can come together for scientific study and exchange of ideas, and to make Springfield the medical and surgical center of the Ozarks.

Every member of the Clinical Society must be a member of the Greene County Medical Society and must agree to attend a definite number of the scientific meetings of that society.

The society began publication of the *Springfield (Mo.) Clinical Society Monthly Bulletin* with the February issue which is sent free to members. It is edited by Dr. Paul F. Cole who formerly edited the *Clinical Bulletin*, now discontinued. The publication is well edited and printed on good paper. It contains papers read at the meetings of the society and abstracts from other publications.

Dr. Arthur W. Westrup, Webster Groves, superintendent of the St. Louis County Hospital, now under construction at Clayton, has appointed the staff of the institution. Dr. Westrup requested the St. Louis County Medical Society to cooperate with him in the selection of the members of the staff and the Society expressed its approval of the names. The services and the physicians appointed to each service follow:

**Surgery.** W. E. Leighton, St. Louis, chief; J. H. Armstrong, Kirkwood; Fred W. Bailey, St. Louis; Chester H. Denny, Clayton; John D. Hayward, St. Louis; Walter R. Hewitt, St. Louis; W. A. Smith, St. Louis; Leo A. Will, St. Louis.

**Medicine.** Arthur W. Westrup, Webster Groves, chief; H. N. Corley, Webster Groves; R. E. Gaston, Webster Groves; F. C. E. Kuhlmann, Webster Groves; B. Y. Glassberg, St. Louis; Alphonse McMahon, St. Louis; W. F. O'Malley, Webster Groves; W. H. Townsend, Maplewood.

**Urology.** P. N. Davis, Maplewood, chief; H. H. Kramolowsky, St. Louis; H. G. Lund, St. Louis; C. D. Pickrell, St. Louis; Clarence Martin, St. Louis; Otto J. Wilhelm, St. Louis.

**Ear, Nose and Throat.** Otto W. Koch, St. Louis, chief; C. L. Davis, Webster Groves; A. M. Alden, St. Louis; James B. Costen, St. Louis; Carl C. Irick, Webster Groves.

**Eye.** Clyde P. Dyer, Webster Groves, chief; Julius H. Gross, St. Louis; Harvey D. Lamb, St. Louis; Wm. F. Hardy, St. Louis; John N. McGrath, St. Louis.

**Chest.** Howard Carter, St. Louis, chief; J. F. Bredeck, St. Louis; Hubert Denny, Creve Coeur.

**Neurology.** Hillel Unterberg, St. Louis, chief; A. H. Deppe, St. Louis; Archer D. Carr, St. Louis; Andrew B. Jones, St. Louis; A. M. Thompson, St. Louis.

**Obstetrics and Gynecology.** Lee Dorsett, St. Louis, chief; E. O. Breckenridge, Maplewood; P. M. Brossard, Maplewood; Irene M. Blanchard, Webster Groves; E. L. Fredericks, Manchester; J. A. Prichard, Overland; J. D. Stoelzle, Clayton; John H. Sutter, University City; F. P. Knabb, Valley Park; Roy A. Walther, Overland.

**Orthopedics.** C. H. Crego, Jr., St. Louis, chief; Frank P. Gaunt, Webster Groves; John O'Connell, Overland; J. Edgar Stewart, St. Louis.

**Pediatrics.** T. C. Hempelmann, St. Louis, chief; Joseph P. Costello, St. Louis; C. E. Colgate, Webster Groves; A. C. Hofsommer, Webster Groves; Mary A. McLoon, St. Louis; J. A. Sterling, St. Louis.

**Dermatology.** Richard S. Weiss, St. Louis, chief; Garold V. Stryker, St. Louis.

**Roentgenology.** L. G. McCutchen, St. Louis, chief.

**Anesthetics.** Joseph McNearney, St. Louis, chief; Roscoe E. Baker, Webster Groves.

**Pathology.** H. N. Allen, St. Louis, chief.

**Dentistry.** E. H. Jacobsmeier, Clayton, chief; F. J. Brockman, St. Louis; H. T. Kemper, St. Louis; E. F. Rehm, Maplewood; Joseph H. Williams, St. Louis.

In addition to the regular staff Dr. Westrup has appointed with the approval of the St. Louis County Medical Society an associate staff. The members of this group follow:

**Surgery.** C. E. Barnett, Kirkwood; H. T.

Coleman, Pattonville; Foster A. Dill, Maplewood; D. H. Hanson, Maplewood; H. Y. Luckey, St. Louis; F. J. Petersen, St. Louis; L. B. Tiernon, St. Louis.

*Medicine.* L. W. Cape, Maplewood; H. A. Goodrich, Webster Groves; C. H. Leslie, Kirkwood; H. L. Meador, Clayton; G. Jones, St. Louis; J. D. Poe, Wellston; J. B. Suduth, Clayton; J. D. Thurmon, St. Louis; J. A. Townsend, Eureka; R. H. Trumpour, Kirkwood; E. E. Tremain, Maplewood.

*Urology.* Meade Edgar Hagerty, St. Louis; M. T. Morrison, St. Louis.

*Obstetrics and Gynecology.* G. H. Klinkerfuss, St. Louis.

*Pediatrics.* L. C. Obrock, St. Louis; O. D. Seabaugh, Kirkwood.

Dr. T. J. Kimsey, Lathrop, was the guest of a joint meeting of Douglas and Leavenworth (Kansas) County Medical Societies held at Lawrence, Kansas, March 26, and read a paper on "Substitute for Obstetrical Forceps." This invitation had been prompted by an article on the same subject written by Dr. Kimsey and published in the January number of the *Medical World*. Dr. Kimsey is seventy-eight years old and has practiced medicine for fifty-six years.

Dr. Esmond R. Long, Chicago, professor of pathology, University of Chicago, will be the guest of the St. Louis Trudeau Club Tuesday, May 6, and will deliver an address on "Experimental Studies in Visceral Tuberculin Reactions" before the joint meeting of the St. Louis Medical Society and the Trudeau Club in the Medical Society auditorium. Dr. Long will be the guest of the Trudeau Club at a dinner given in his honor at the Coronado Hotel at 6:00 p. m. Reservations should be made with the secretary, Dr. George D. Kettlekamp, Koch Hospital, not later than Saturday, May 3. The charge is \$2 per plate.

The following articles have been accepted for New and Nonofficial Remedies:

Eli Lilly & Co.

Merthiolate Jelly, Lilly

Merthiolate Ointment, Lilly

E. R. Squibb & Sons

Squibb's Dextro-Vitavose

Frederick Stearns & Co.

Synephrin

Synephrin Solution "A"

Ampoules Synephrin-Procaïne, 3 cc.

Hypodermic Tablets Synephrin-Procaïne

The following article has been exempted and included with the List of Exempted Medicinal Articles (New and Nonofficial Remedies, 1929, p. 481):

G. D. Searle & Co.

Stable Solution Dextrose and Sodium Chloride (Searle)

## OBITUARY

JOHN W. LOVAN, M.D.

Dr. John W. Lovan, Hebron, died January 25, 1930, aged 76. He attended the Memphis Medical College, Memphis, Tennessee, and was licensed to practice medicine in 1899.

Dr. Lovan was a member of the Howell-Oregon-Texas County Medical Society and a Fellow of the American Medical Association.

FRANK MINOR DOUGLASS, M.D.

Dr. Frank M. Douglass, Clinton, a graduate of the University of Louisville School of Medicine, 1870, died of heart disease at his home, March 9, 1930, aged 86.

Dr. Douglass was born in Peru, Indiana, in 1843, and spent his early life in that vicinity. He located in Clinton thirty-nine years ago and practiced there for many years, retiring several years ago on account of poor health. During the Civil War, Dr. Douglass was a gunner in the 10th Indiana Artillery and has for many years been a member of the Veterans of the Grand Army of the Republic. He was an honorary member of the Spanish War veterans organization. He was a member of the Henry County Medical Society, having served as secretary for very many years.

EDMUND A. BABLER, M.D.

In the sudden and untimely death of our friend and colleague, Dr. Edmund A. Babler, our Society has lost one of its outstanding members. Optimistic, enthusiastic and a possessor of rare surgical skill founded on years of study and close application to his work, Dr. Babler conscientiously gave his best efforts to rich and poor alike. His charity was so widespread and offered in such an unassuming manner that his close associates were not aware of its extent until his passing loosened the tongues of the many he had so quietly befriended. During his last days the constant stream of inquiries and expressions of sympathy, which poured in from all walks of life, indicated clearly the high esteem in which he was held, not alone because of his high professional attainments,



but also because of his generous, upright character.

Our Society and those institutions with which Dr. Babler was connected have suffered an irreparable loss, and we join them in extending to the sorrowing relatives our most sincere sympathy.

A. R. S., in the *Bulletin of the St. Louis Medical Society*.

#### RICHARD ASBERY WALKER, M.D.

Dr. Richard A. Walker, St. Louis, a graduate of Barnes Medical College, St. Louis, 1905, died March 12, of cancer, aged 55.

Dr. Walker had been official physician of the St. Louis Boxing Commission since 1927. He was well known in the field of sports, having examined boxers and athletes for a score of years. Dr. Walker was active in his practice until a few days before his death.

He is survived by his widow, one son, and one sister.

#### WALTER WILLIAM VAUGHAN, M.D.

Dr. Walter W. Vaughan, St. Louis, a graduate of the St. Louis College of Physicians and Surgeons, 1890, died February 19, 1930, aged 66.

Dr. Vaughan had followed the general practice of medicine in St. Louis for forty years. He was a Fellow of the American Medical Association, and a member of the Missouri State Medical Association and the St. Louis Medical Society.

Members of Arlington Circle No. 238 of the Protected Home Circle submitted the following tribute to Dr. Vaughan.

That which He does is always for the best,  
He called our beloved brother to his final rest.  
Ours not to wonder at the message sent,  
Not ours to question but to be content.  
But we will not forget thee, we who stay  
To work a little longer here;  
Thy name, thy faith, thy love shall live  
On memory's tablet bright and clear.

It is with bowed heads and heavy hearts that we, the members of Arlington Circle, No. 238, of the Protected Home Circle, announce the passing on of our beloved member, Dr. Walter William Vaughan, a state deputy health commissioner of Missouri and a member of the Supreme Circle.

God's finger touched Dr. Vaughan and bade him to follow Him into the realms beyond, saying, "Let not your heart be troubled, I am the Way, the Truth and the Life."

He was born at Bridgeton, in St. Louis County, and educated at Bridgeton Academy and at Central College, Fayette, Mo. He was a member of the Wagner Place M. E. Church, Occidental Lodge No. 163 A. F. and A. M., St. Louis Medical Society, the Missouri and

American Medical Associations, Bellefontaine Chapter, No. 69 O. E. S., and Arlington Circle, No. 238 Protected Home Circle.

He is survived by his widow, Mrs. Bertha Vaughan, past grand president of the Protected Home Circle of Missouri; a son, Dr. John R. Vaughan; a daughter, Mrs. Kenneth Hill; a brother, Dr. John W. Vaughan; and a sister, Mrs. J. T. Forster.

He sorrowed with the sorrowing and rejoiced with those who had joy, and had his heart open to all God's beauty and obtained inspiration and happiness from his labors. His thoughts were of the welfare of others. He was loved by all who knew him. To each member of Arlington Circle his passing brings a sense of personal loss. He was loved in life and his memory will live on in the hearts of his many friends.

To the grief-stricken widow, son, daughter, brother and sister who have lost a most devoted husband, father and brother, we extend our loving sympathy.

Father, in Thy gracious keeping,  
Leave me now Thy son sleeping.

MRS. CHRISTINA E. PHILLIPS  
MRS. ERMA SUMMERS  
MR. WILLIAM NEWCOMB  
Committee.

#### LEWIS A. BRADBURY, M.D.

Dr. Lewis A. Bradbury, Jefferson Barracks, a graduate of the University Medical College of Kansas City, Kansas City, Missouri, 1907, died April 26, aged 48.

Dr. Bradbury was born at McPherson, Kansas, and had his preliminary education there. He practiced in Kansas until serving with the Red Cross in Russia during the World War. In 1921 he entered the United States Public Health Service and joined the staff of the United States Veterans' Bureau in 1924. The following resolutions were adopted by the St. Louis County Medical Society:

WHEREAS, It has pleased an All-Wise Providence to call from our midst one of our highly esteemed members, Dr. Lewis Bradbury, therefore be it

*Resolved*, that the members of our Society extend our sympathy to his widow.

Second, That a copy of these resolutions become a part of the minutes of this meeting and a copy be sent to his widow.

Third, That our Society has lost a valued member and that we shall hold his life worthy of emulation.

GARNETT JONES, M.D.  
H. N. CORLEY, M. D.  
Committee.

Resolutions by the staff of the United States Veterans' Hospital, Jefferson Barracks, Missouri:

WHEREAS, It has pleased our heavenly Father in his infinite wisdom to remove from our midst our esteemed and beloved colleague, Dr. Lewis A. Bradbury, Chief, Surgical Service, be it

*Resolved*, That in view of his high surgical ideals, his untiring efforts in behalf of his patients and his genial personality which endeared him to all whose good fortune it was to come in contact with him, it is with deep regret that the medical staff of this hospital deplores the passing of the splendid man and surgeon, Dr. Lewis A. Bradbury, and directs that a copy of this resolution be forwarded to his bereaved widow, Mrs. Emma N. Bradbury.

W. C. GIBSON, M.D.

#### JAMES WATSON CAMPBELL, M.D.

Dr. James Watson Campbell, born November 25, 1884, at State College, Pennsylvania, died January 27, 1930, at Halstead Hospital, Halstead, Kansas, from coronary thrombosis. When he was two years of age, his parents moved to Greeley County, Kansas. He received his primary education in the public schools of Attica, Kansas, and his A.B. and M.D. degrees from Kansas University, 1909 and 1914, respectively. His internship was served at the Kansas City General Hospital, after which he was physician to the Central Coal and Coke Company of Admore, Missouri, for one year.

In 1916 he established a pathological laboratory in Kansas City, which he conducted until leaving for the World War in 1918. He became a member of the Medical Corps with rank of Captain, and was assigned to the laboratories at Yale University for the duration of the World War.

His most outstanding and valuable work with the physicians of Kansas City was rendered during the years 1920 to 1925, as laboratory director at the Kansas City General Hospital, and pathologist at Christian Church Hospital and Swope Settlement, and as lecturer on contagious diseases at Kansas University Medical School.

Only the staff, interns and students connected with these institutions fully appreciate the wonderful volume of work he accomplished. His enthusiasm and patience, coupled with the vast experience in diagnosis of morbid tissues, and with the aid of microscope and chemical findings, ever proved of inestimable value to the medical attendant and the profession as a whole.

Owing to his superior qualifications in his chosen specialty, Dr. Arthur E. Hertzler selected him chief of the medical staff and supervisor of the laboratory at Halstead Hospital, which place he filled in the most competent manner until his death. In 1927 he took a postgraduate course in X-ray at Battle Creek Sanitarium. He was a member of the Kansas State Medical Association,

president of the Harvey County Medical Society, 1927-1928, a member of the Kansas City Academy of Medicine, American Medical Association and a Fellow of the American College of Physicians. He was a member of the Phi Gamma Delta, Theta Nu, Nu Sigma Nu and Sigma Xi fraternities.

Dr. Campbell was united in marriage to Miss Jane Knight, of Moncton, N. B., Canada, December 22, 1915. His widow and four children survive him.

He was a faithful husband, devoted father and a Christian gentleman. His ability as a teacher, pleasing personality, and obliging manner endeared him alike to family, friends, physicians and patients.

"Into the lives of all  
The tears of sorrow fall.  
Into the happiest hearts  
Grief drives her darts;  
No door however stout  
Can shut Death's angels out."

C. A. RITTER, M.D. in the *Bulletin of the Jackson County Medical Society*.

#### CHARLES FRANCIS MARTIN, M.D.

Dr. Charles F. Martin saw the light of day April 12, 1874, in the city of Chicago, and died in Kansas City, June 27, 1929. His parents came to Kansas City when he was a small boy. He studied medicine at the Kansas City College of Physicians and Surgeons. The Kansas State University absorbed this school in 1912 and Dr. Martin became an alumnus of the Kansas University. Dr. Martin did a large country practice in Missouri immediately after graduating and for several years before locating in Kansas City. He was an intern in the Missouri Pacific Railway Hospital on West 10th Street in the service of Drs. Willis King and George Hamel for one year. His office was in the Chambers Building. He was on the staff of Children's Mercy Hospital, but gave about one half of his time to the administration of anesthetics. Owing to his kind, smiling disposition, the little patients loved him and had so much confidence in him they would go under the anesthetic smiling while he was telling them some good-night story. His tireless activity in the cause of poor children stands out prominent in his life work. The writer had Dr. Martin give many anesthetics to children for mastoid abscess, sinus operations and tonsillectomies.

He was a member of the Jackson County Medical Society, a Fellow of the American Medical Association and a member of the Associated Anesthetists of the United States



and Canada. He was a member of the Masonic Order and the American Legion.

The tragic death of Dr. Martin has removed a notable figure of the Kansas City medical profession. He respected and loved his colleagues, was patient toward other physicians, always exercised charity, and never judged them lightly. He was laid away in Forest Hill Cemetery. Many of the children of Mercy Hospital attended his funeral, as did many physicians and nurses. The children of Kansas City have lost a great friend. His stimulating and gracious manner will be missed. The medical profession has lost a good member, a cultured physician, who loved his profession and served it well.

Dr. Martin is survived by his widow and a married daughter at the home, 6814 Main St., Kansas City, Mo.

The following little poem expressed Dr. Martin's life:

#### SMILE

"What good did it do to be grouchy today?  
Did your surliness drive any troubles away?  
Did you cover more ground than you usually do  
Because of the grouch that you carried with you?  
If not, what's the use of a grouch or a frown,  
If it won't smooth a path or a grim trouble down,  
If it doesn't assist you, it isn't worth while.  
Your work may be hard, but just do it—and smile."

HAL FOSTER, M.D., in the *Bulletin of the Jackson County Medical Society.*

### MISSOURI STATE MEDICAL ASSOCIATION

#### 73rd Annual Meeting, Elks' Club, Hannibal

The 73rd Annual Meeting of the Association convenes at Hannibal, Monday, Tuesday, Wednesday and Thursday, May 12, 13, 14, and 15. The House of Delegates will convene Monday, May 12, and hold its first session when a large part of the business of the Association will be transacted without interfering with the scientific proceedings on the following days. As usual Wednesday night has been set aside for the addresses of the President, the President-Elect and our guest.

#### HOUSE OF DELEGATES

##### First Meeting—Monday, May 12, 1930—9:30 A. M. Elks' Club

Roll Call.  
Reading of Minutes of Previous Meeting.  
Reading of President's Message and Recommendations.  
Appointment of Reference Committees—  
Committee on Credentials.  
Committee on Amendments to the Constitution and By-Laws.  
Committee on Resolutions.  
Committee on Miscellaneous Affairs.  
Report of Committee on Arrangements.  
Report of Secretary.  
Report of Treasurer.  
Report of Committee on Scientific Work.  
Report of Committee on Public Policy.  
Report of Committee on Publication.  
Report of Committee on Medical Defense.  
Report of Committee on Medical Education and Hospitals.  
Report of Committee on Postgraduate Course.  
Report of Committee on Medical Economics.  
Report of Committee on Constitution and By-Laws.  
Report of Special Committees.  
Appointment of Committee on Nominations.

##### Recess until 3:00 P. M.

Report of the Council.  
Report of Reference Committees.  
New Business (Resolutions, Memorials, etc.).  
Selection of Place of Next Meeting.

##### Second Meeting—Wednesday, May 14, 1930—3:30 P. M. Elks' Club

Reading of Minutes.  
Report of Committee on Credentials.  
Installation of President.  
Nominations for Standing Committee by President and Confirmation by House of Delegates.  
Report of Committee on Nominations.  
Election of President-Elect.  
Election of Officers.  
Unfinished Business.

### The Council

First meeting Monday, May 12, in the Elks' Club, immediately after adjournment of the morning session of the House of Delegates.

Second meeting Wednesday, May 14, immediately following adjournment of House of Delegates.

### GENERAL MEETING

Tuesday, May 13, 1930—8:30 A. M. Elks' Club

Symposium on Contagious Diseases:

- Diagnosis of Diphtheria.....John Zahorsky, M.D., St. Louis
- Treatment of Diphtheria.....E. H. Rohlfing, M.D., St. Louis
- Prevention of Diphtheria.....Adrien Bleyer, M.D., St. Louis
- Prevention and Treatment of Scarlet Fever.....
- .....Harry M. Gilkey, M.D., Kansas City
- The Underfed Infant.....M. J. Lonsway, M.D., St. Louis
- Allergy and Immunity in Tuberculosis; Illustrated With Lantern Slides
- .....Howard H. Bell, M.D., St. Louis
- The Indication for Artificial Pneumothorax in Tuberculosis; Illustrated With Lantern Slides.....Sam H. Snider, M.D., Kansas City
- Hemiplegia; Its Causes and Treatment.....
- .....G. Wilse Robinson, Jr., M.D., Kansas City
- Endocrinology; Its Application in General Practice.....
- .....D. L. Sexton, M.D., St. Louis

### GENERAL MEETING

Tuesday, May 13, 1930—1:30 P. M. Elks' Club

Symposium on Chest Diseases in Childhood:

- Acute and Chronic Bronchitis...Caldwell B. Summers, M.D., Kansas City
- Medical Treatment of Empyema.....D. O. Walthall, M.D., Kansas City
- Surgical Treatment of Empyema..James G. Montgomery, M.D., Kansas City
- Pulmonary and Tracheobronchial Gland Tuberculosis in Childhood....
- .....T. C. Hempelmann, M.D., St. Louis
- Treatment of Cancer of the Tongue.....Ellis Fischel, M.D., St. Louis
- Primary Carcinoma of the Fallopian Tube..W. J. Gallagher, M.D., St. Louis
- The Fundamental Principles of Diagnosis in Low Back Lesions; Illustrated With Lantern Slides.....C. Wilbur Mercer, M.D., Kansas City
- Arthritis of the Feet.....James R. Elliott, M.D., Kansas City
- Sympathectomy.....W. T. Coughlin, M.D., St. Louis

### GENERAL MEETING

Wednesday, May 14, 1930—8:30 A. M. Elks' Club

Symposium on Gynecology and Obstetrics:

- Puerperal Infection.....Otto H. Schwarz, M.D., St. Louis
- Gynecological Care of the Puerperium...M. A. Hanna, M.D., Kansas City
- Selective Surgery in Uterine Prolapse....H. S. Crossen, M.D., St. Louis
- The Sedimentation Test in Relation to Pelvic Disorders.....
- .....Fred B. Kyger, M.D., Kansas City
- Uterine Hemorrhage.....Chas. D. O'Keefe, M.D., St. Louis
- Diseases of the Male Breast.....
- M. Pinson Neal, M.D., Columbia, and Burton T. Simpson, M.D., Buffalo, N. Y.
- Fractures Involving the Elbow.....M. L. Klinefelter, M.D., St. Louis
- Duodenal Ulcer; Surgical Treatment with Case Reports.....
- .....J. W. Thompson, Jr., M.D., St. Louis
- The Diagnosis of Common Anorectal Diseases; With Motion Picture Demonstration.....Frederick B. Campbell, M.D., Kansas City

### GENERAL MEETING

Wednesday, May 14, 1930—1:30 P. M. Elks' Club

- A Modern Conception and Plan of Anesthesia.....
- .....Willard Bartlett, M.D., St. Louis
- Toxic Goiter; Early Symptoms, Diagnosis and Treatment.....
- .....Theo. H. Hanser, M.D., St. Louis
- Late Treatment of Burns of the Extremities; Illustrated With Lantern Slides.....James Barrett Brown, M.D., St. Louis
- Some Problems in Diagnosis and Treatment of Conditions in the Aged....
- .....J. De Voine Guyot, M.D., Higginsville
- Circulatory Disturbances in Diabetes..Donald R. Black, M. D., Kansas City
- Obesity and Leanness; Classification and Management.....
- .....Arthur C. Clasen, M.D., Kansas City

At 3:30 p. m. the General Meeting will adjourn and the House of Delegates will immediately go into session.



## GENERAL MEETING

Wednesday, May 14, 1930—7:30 P. M. Elks' Club

Address of the President.....T. W. Cotton, M.D., Van Buren  
 Address of the President-Elect.....W. C. Gayler, M.D., St. Louis  
 Address.....W. Gerry Morgan, M.D.,  
 Washington, D. C., President-Elect, American Medical Association

## GENERAL MEETING

Thursday, May 15, 1930—8:30 A. M. Elks' Club

Symposium on Abdominal Surgery:

Traumatic Lesions of the Abdomen.....C. E. Hyndman, M.D., St. Louis  
 Intestinal Obstruction.....M. J. Owens, M.D., Kansas City  
 Some Unusual Abdominal Conditions.....A. O. Fisher, M.D., St. Louis  
 Early Stages of Gallbladder Disease..Robert D. Irland, M.D., Kansas City  
 Costly Delays in Abdominal Conditions...Wilbur Smith, M.D., Springfield  
 Bilateral Stones in the Kidney.....James R. McVay, M.D., Kansas City  
 Further Observations on Nephropexy and Ureteroplasty for Relief of  
 Urinary Obstruction and Pain.....C. E. Burford, M.D., St. Louis  
 Spinal Anesthesia in Bladder Surgery; Report of Cases.....  
 .....Robert Vinyard, M.D., St. Louis  
 Urinary Bladder Obstruction Not Due to Prostatic Hypertrophy.....  
 .....Grayson Carroll, M.D., St. Louis

## GENERAL MEETING

Thursday, May 15, 1930—1:30 P. M. Elks' Club

Coexistent Gallbladder, Renal and Ureteral Stones.....  
 .....Willis B. Young, M.D., St. Louis  
 So-Called Pyelitis.....R. Lee Hoffmann, M.D., Kansas City  
 Structural Changes in the Kidneys in Hypertension and Glomerular  
 Nephritis.....Frederick C. Narr, M.D., Kansas City  
 Significance of Systemic Manifestations of Paranasal Infection.....  
 .....B. J. McMahon, M.D., St. Louis  
 Broncho-Sinusitis; The X-Ray Examination and Its Correlation With  
 Clinical Symptoms.....E. R. Dewese, M.D., Kansas City  
 Hereditary Cataract.....E. T. Hornback, M.D., Hannibal  
 Phytobezoar (*Diospyri Virginianae*); Report of Cases.....  
 .....Paul F. Cole, M.D., Springfield

TWENTY-SECOND ANNUAL MEETING OF MISSOURI SO-  
 CIETY OF MEDICAL SECRETARIES

Wednesday, May 14, 1930—6:00 P. M. Mark Twain Hotel

President, Dr. J. M. Singleton, Kansas City.  
 Vice President, Dr. C. D. Humberd, Barnard.  
 Secretary, Dr. J. T. Hornback, Nevada.  
 The secretaries will meet at dinner in the Mark Twain Hotel.

## PROGRAM

Address of Welcome.....Dr. J. M. Singleton, Kansas City, President  
 On the Air.....  
 Dr. T. W. Cotton, Van Buren, President, Missouri State Medical Association  
 New Shapes in the Sky.....  
 Dr. Wm. Gerry Morgan, Washington, D. C., President-Elect, American  
 Medical Association  
 Address .....  
 Dr. E. J. Goodwin, St. Louis, Secretary, Missouri State Medical Association  
 Some Memories of Mark Twain.....  
 Dr. H. B. Goodrich, Hannibal, Secretary, Marion County Medical Society  
 Election of Officers.

## COMMERCIAL EXHIBITORS

## Elks' Club

A. S. Aloe Company. Physicians' and Hospital Equipment and Sup-  
 plies ..... St. Louis  
 Dick X-Ray Company. X-Ray Equipment.....St. Louis  
 General Electric X-Ray Corporation. X-Ray and Physiotherapy Equip-  
 ment ..... Chicago  
 Mead Johnson & Company. Infant Diet Materials.....Evansville, Ind.  
 The Medical Protective Company of Fort Wayne, Indiana. Malpractice  
 Insurance ..... Chicago  
 C. V. Mosby Company. Medical Books.....St. Louis  
 Petrolagar Laboratories. Petrolagar.....Chicago

## SOCIETY PROCEEDINGS

### COUNTY SOCIETY HONOR ROLL FOR 1930

(UNDER THIS HEAD WE LIST SOCIETIES WHICH  
HAVE PAID DUES FOR ALL THEIR MEMBERS)

#### HONOR ROLL

Mercer County Medical Society, December 12, 1929.  
Madison County Medical Society, December 16, 1929.  
Benton County Medical Society, January 8, 1930.  
Pulaski County Medical Society, January 11, 1930.  
Webster County Medical Society, January 24, 1930.  
Chariton County Medical Society, January 27, 1930.  
Ralls County Medical Society, March 6, 1930.  
Camden County Medical Society, March 10, 1930.  
Dent County Medical Society, April 2, 1930.  
Schuyler County Medical Society, April 5, 1930.  
Platte County Medical Society, April 7, 1930.  
Christian County Medical Society, April 7, 1930.  
Macon County Medical Society, April 12, 1930.  
Miller County Medical Society, April 14, 1930.

### CHRISTIAN COUNTY MEDICAL SOCIETY

The Christian County Medical Society met at Ozark, April 4, 1930, and elected the following officers for 1930: President, Dr. J. H. Wade, Ozark; vice president, Dr. H. J. Wise, Sparta; secretary-treasurer, Dr. F. H. Brown, Billings; delegate, Dr. F. H. Brown; alternate, Dr. R. R. Farthing, Ozark.

An instructive paper on "Skin Diseases" was read by Dr. J. C. Young, Ozark.

Drs. H. J. Wise, Sparta, and J. H. Wade, Ozark, gave interesting case reports.

The fall meeting will be held September 4 at the famous resort of Christian County, "Lindenlure." The committee on arrangements consists of Drs. J. C. Young and J. H. Wade, of Ozark.

F. H. BROWN, M. D., Secretary.

### THE KANSAS CITY ACADEMY OF MEDICINE

Meeting of February 21, 1930

#### INTRAVENOUS ANESTHESIA.—By DR. ROBERT M. ISENBERGER

The intravenous administration of drugs for the production of anesthesia is not a new procedure. As early as 1872, chloral hydrate was used in this manner. The effects of chloral hydrate were shown to result from its conversion in the body into trichlorethylalcohol. This is of interest in connection with the recent development and use of tribromethylalcohol or avertin. Avertin is administered most

satisfactorily by rectum, and possesses distinct anesthetic properties.

Of the urea derivatives, hedonal was used as an intravenous general anesthetic from about 1914 to 1918. Within the last five years more soluble esters of urea in the form of salts of barbituric acid have been introduced. Somnifen, pernocton, and sodium amytal are among the most important.

Ravdin used sodium amytal by rectum for obstetrical analgesia and anesthesia. Zervas and McCullum extended its application to the production of full surgical anesthesia following small preliminary doses of morphine, and used the intravenous method of administration. Tatum and Atkinson demonstrated the value of barbital experimentally in preventing convulsions from toxic doses of cocaine, thereby materially increasing the tolerance of the animals to the local anesthetic. Loevenhart and his associates observed that the anticonvulsant properties of sodium amytal were greater than those of barbital. Lundy and I studied the pharmacological properties of sodium amytal experimentally and clinically in relation to the untoward reactions of toxic doses of novocaine, and later as a "basal narcotic" in general anesthesia.

After a two year period of investigation at the Mayo Clinic, the results may be summarized as follows:

1. Sodium amytal was found to be very active in preventing or stopping convulsions, and thereby the spastic paralysis of the respiratory muscles which accompany experimental novocaine poisoning. With the convulsions eliminated, however, it did not protect against central respiratory paralysis following overwhelming doses of novocaine. By the addition of well-controlled artificial respiration, life of the animal was sustained for long periods in the instance in which central respiratory paralysis followed large doses of novocaine, and in which the convulsions were prevented by sodium amytal. Preliminary medication with sodium amytal alone or in many cases combined with small doses of morphine, was observed to reduce the frequency and severity of the untoward reactions of patients to local and regional novocaine anesthesia.

2. In the experimental work on sodium amytal as a "basal narcotic" for general anesthesia, quantitative determinations of the minute volume of respiration and of the ability of the respiratory mechanism to respond to therapeutic doses of carbon dioxide were made. Such determinations are considered of value in estimating the "vital reserve" of animals and patients subjected to the effects of narcotizing agents.

3. Sodium amytal and other soluble barbiturates should be considered largely if not entirely as an aid in the preparation of patients for anesthesia which is to be induced and graduated by the use of local or inhalation anesthetics. For this purpose it is apparently true that complete loss of consciousness, with a variable degree of analgesia and relaxation, can be safely and consistently produced by the use of small doses of morphine sulphate followed by moderate amounts of sodium amytal. The preliminary morphine seems to render the sodium amytal action more uniform and more intense, thereby minimizing the required amount of the latter drug. By minimizing the amounts used of both the morphine and sodium amytal, postoperative sleep and restlessness are reduced. The preliminary morphine and sodium amytal greatly reduce the amount of inhalation anesthetic required for full surgical anesthesia, and also aid materially in the induction and maintenance of the effects of the inhalation anesthetics. Furthermore, their prolonged action renders postanesthetic nausea and vomiting extremely unlikely.

4. The use of sodium amytal in suitable combina-



tion and sequence with morphine or alone for the production of "basal narcosis," may be accompanied by a higher degree of "vital reserve" than prevails when local or general anesthesia is induced without preliminary medication. This is indicated by the fact that in the presence of the above described "basal narcosis" full surgical ether anesthesia is accompanied by a comparatively slight reduction in minute volume of respiration and in carbon dioxide irritability of the respiratory center. The fact that one is using minimal amounts of a number of similarly acting drugs in combination, rather than relatively large amounts of any one narcotizing agent, may be of importance in this connection. On the other hand, one should bear in mind that the combined effects of similarly acting drugs may assume alarming proportions, especially if the dose of each drug is not carefully regulated. It is of interest that the above mentioned moderate decrease in respiratory minute volume and carbon dioxide respondability, in comparison to that which occurs in normal sleep, is apparently due to the morphine fraction, although the addition of the sodium amytal effect seems to hasten the onset of its appearance.

5. "Basal narcosis" as a result of the proper administration of sodium amytal in combination and sequence with morphine, or unaccompanied by morphine, is followed by total amnesia on the part of the patient for the anesthetic and surgical procedures and for a large part of the preoperative and postoperative discomfort.

Experimental and clinical evidence points to the fact that intravenous anesthesia in its broad sense, unsupplemented, uniform, safe and satisfactory to the best interests of the patient, surgeon and anesthetist, is not yet an established fact.

#### DISCUSSION

DR. F. I. WILSON: I should like to emphasize the psychic effect upon the patient when going into the operating room with preliminary amytal preparation. A patient once fainted in the operating room while awaiting anesthesia, and when operation was finally started the patient went into shock which prevented completion of the operation. Three months later, the patient underwent a satisfactory operation for cancer of the bowel, without shock, because amytal and morphine were given as preliminary measures. Amytal also prevents vomiting and convulsions. It is given in doses of six grains, by mouth, the evening and the morning preceding operation and eight to twelve grains are administered intravenously in the patient's room. I have used six grains by mouth the evening and morning before operation, seven grains intravenously, and supplemented the anesthesia with a little ether. The patients like it. Recently I have given only sodium amytal before operation because morphine seems to cause poorer breathing and to make the induction of anesthesia more difficult. The patient also sleeps too long afterward.

I do not consider amytal an anesthetic as suggested by Eli Lilly & Company. Doses above fifteen grains are seldom indicated. When administered intravenously it should be given slowly because of the danger of respiratory paralysis. However, I have never seen respiratory paralysis from its use. It is probably contraindicated in bronchoscopy and for tonsillectomy as it depresses the cough reflex. I see no need for combining it with gas since, with ether, too little is used to cause laryngitis or bronchitis.

DR. L. P. ENGEL: I do not consider amytal in itself a general anesthetic. It is especially inadvisable in cases that are poor inhalation risks, because of the danger of pulmonary edema in the

young, pneumonia in the aged, and changes that occur in the urinary excretion. The surgeon should decide before operation whether local or general anesthesia is to be employed; if the former, small doses should be given. Large doses intravenously are good for cases of goiter with fibrillation in elderly individuals and for extremely nervous patients. I think it may decrease the metabolic rate and thus lessen postoperative thyroid crises.

I have had one unhappy result in a woman with toxic thyroid adenoma and a B.M.R. of plus twenty-five. Six grains of amytal were administered the evening before operation and six grains the next morning. Morphine, grains  $\frac{1}{4}$ , was administered one hour before operation, and fifteen grains of amytal were given intravenously at the time of operation. The patient became wild. One-fourth grain of morphine was given and finally ether was resorted to. One hour after operation her respiratory rate was twelve and her breathing was shallow. She slept for eighteen hours, then choked on mucous and a tracheotomy was necessary on the second postoperative day in order to save her life.

DR. FRANK I. RIDGE: There are two theories on the method of anesthesia: (1) that of anoxemia and (2) that of lipoidal solvents. I should like to raise the question of the effect of lipoidal solvents upon the liver when maintained for prolonged periods.

DR. F. C. HELWIG: I saw two cases at necropsy that had been given amytal, and found in the brains no evidence of toxic effects by crude staining methods. In a death with veronal poisoning I thought I found evidence of degenerative changes in the nerve cells. I don't believe the first two deaths were due to amytal.

DR. H. P. KUHN: From a clinical point of view an anesthetic that is acceptable to the patient and satisfactory to the surgeon is all right. Sodium amytal fulfills all the requirements in thyrotoxicosis. I believe that most surgeons would welcome hypodermic anesthesia, and amytal closely approximates that particular procedure. The unfavorable features are the required close attention of a special nurse because of relaxation and the danger of asphyxiation. The goiter patient who is at all toxic should not know what is going on or when he will come into the operating room. The anesthetic should not be so deep that he will not respond when the poles are being ligated. In our experience amytal and morphine are likely to make the anesthetic too deep, but a little ether used with amytal at the right stage is most satisfactory. The morphine is reserved for use after the patient goes back to bed and to control nervousness.

DR. RALPH R. WILSON: Sodium amytal is an adjunct in obstetrics, but my experience with it is limited because of the responsibility entailed and because some patients have experienced the excitement reaction requiring undesirable measures for their control immediately preceding delivery. A few cases of nausea of pregnancy responded to the drug. To date, my most successful results have been obtained in pelvic cases. Three points are to be emphasized: (1) The nausea reflex may be depressed as long as thirty-six hours, and fluids may be given abundantly upon the anesthetic recovery obviating acidosis before the drug effects die out; (2) there is a slight urinary reduction from the drug which extra fluids offset; (3) the cough reflex is depressed and necessitates frequent change of the patient's position for adequate pulmonary ventilation. Unless the head is kept on the side or the jaw supported, the patient is apt to "swallow her tongue."

DR. A. L. SKOOG: I have used amytal for several

years to relieve the pain of tabes, with good results. It has been found valuable in other painful neural states. In regard to the sleep centers, studies in epidemic encephalitis have added to our fund of knowledge. This has been termed by Kinear Wilson as a periaqueductal disease. Possibly in the neighborhood of the upper portion of the iter may be located centers having a marked bearing on the conscious state. The tuber cinereum is small, and I question its importance in the production of sleep. More likely some regions in the brain stem closely adjacent might be responsible for drowsiness. I would like to ask the Doctor if, in your researches on sleep, or of the literature bearing on this topic, anything has been found indicating that this function might be found on the right or left side of the brain stem?

DR. RALPH MAJOR: I once saw a dramatic effect of amytal administered to a patient going into status epilepticus. Two half-grain tablets of morphine had produced no effect, but seven grains of amytal administered intravenously caused the patient to sleep all day and awaken in good condition except for some nausea.

DR. C. B. SCHUTZ: The fall in blood pressure following amytal is due to peripheral vascular dilatation; therefore, it is of short duration and does not become dangerous before central stimulation causes recovery. This also explains why cases with hypertension show a marked fall while those with initial low blood pressure are attended by a correspondingly low fall in blood pressure.

I should like to ask Dr. Isenberger if he has found any other substance besides carbon dioxide to combat the ill effects of sodium amytal. Theoretically, respiration may become so decreased as to practically preclude adequate carbon dioxide inhalation.

DR. ISENBERGER, in closing: In connection with Dr. Engel's remarks, it can be said that sodium amytal does not reduce the metabolic rate. With reference to Dr. Ridge's question concerning the effect of sodium amytal on hepatic function, it is apparently true that the blood sugar and urea levels remain unaffected, and it is doubtful if its lipid solvent action is sufficient to produce direct liver injury. Dr. Helwig's discussion is in line with the general experience that few if any deaths can yet be attributed to the direct injurious effects of sodium amytal. In regard to the points mentioned by Dr. Kuhn, it is important that the use of the soluble barbiturates as an adjunct in anesthesia should be supervised by well trained physician anesthetists. Special nursing care is essential. To counteract the ill effects of sodium amytal, carbon dioxide and oxygen, adrenalin, and possibly ephedrine, would be useful.

Dr. Skoog mentioned the value of sodium amytal in tabetic crises. Dr. Schutz referred to the possibility of it being of value in hypertension. Sodium amytal and other soluble barbiturates have been used to good advantage in a variety of nonsurgical conditions.

## NODAWAY COUNTY MEDICAL SOCIETY

The regular meeting of The Nodaway County Medical Society was held in the first-floor lecture room of The Sisters of St. Francis Hospital, Maryville, Friday, March 14. The meeting was called to order by the president, Dr. L. E. Dean, Maryville, at 7:30 p. m. The following members were present: Drs. C. T. Bell, K. C. Cummins, L. E. Dean, C. V. Martin, R. C. Person, Jack Rowlett, and Wm. Wallis, Jr., of Maryville; Dr. W. M. Hindman, Burlington Junction; Dr. Chas. D. Humbert, Bar-

nard. Drs. Robert M. Isenberger and C. J. Weber, of the University of Kansas Medical School, and Dr. Geo. R. Seikel, Maryville, were present as invited guests of the Society.

The minutes of the regular meeting of February 14 were read and approved.

The committee of investigation, appointed last month, reported that the statements in Dr. J. A. Bloomer's application for membership in the Nodaway County Medical Society had been verified. On motion by Dr. R. C. Person, the committee's report was accepted and the committee discharged.

Dr. C. T. Bell moved that the customary balloting be dispensed with and the secretary instructed to cast the Society's ballot electing Dr. Bloomer to membership. The motion was seconded by Dr. Wm. Wallis, and carried. The secretary cast the ballot as instructed and Dr. Bloomer was declared a member.

A motion carried that the name of Dr. G. E. Horrocks, Maryville, be dropped from the membership roster because he has taken up residence outside the state, and because of nonpayment of dues.

On motion, seconded and carried, the names of Drs. A. D. Barnett and J. M. McClanahan, of Guilford, were dropped from the membership roster because of nonpayment of dues for several years.

The meeting was turned over to the guests who had come as lecturers by courtesy of the Postgraduate Committee of the Missouri State Medical Association. Dr. Isenberger gave an extemporaneous talk on "Some Modern Concepts in Pharmacology." He pointed out the reasons why laboratory findings and clinical experiences are often at variance, and showed where each might be faulty. He gave special attention to many synthetic analgesics lately developed, and clearly described their chemical, pharmacological and physiological relationship. He also gave a careful review of the late history of surgical anesthesia by intravenous injections of the various substances which have been developed from the barbitol series. Dr. Isenberger's remarks were very illuminating and contained much valuable information for those who heard him and the Society greatly appreciated his correlations of experimental work with clinical needs.

Dr. C. J. Weber presented a lecture on "Some Modern Aspects of Biochemistry." He told of the findings and the current experimental work of physiological chemists in the great field of internal secretions and declared that medical practice today is only on the threshold of the wonderful developments that future studies in this field will produce. He also explained the biochemist's idea of the role of vitamins in the human economy.

The Society adjourned at 10:15 p. m., but the majority of the assembly indulged in an informal luncheon at the Knox Cafe with Drs. Weber and Isenberger as guests.

CHAS. D. HUMBERD, M.D., Secretary.

## SCHUYLER COUNTY MEDICAL SOCIETY

The Schuyler County Medical Society met in regular session April 2, 1930, at the office of Dr. A. J. Drake, Lancaster. The meeting was called to order by President H. E. Gerwig, Downing, at 2:30 p. m. Members present: Drs. J. H. Keller and A. J. Drake, of Lancaster; Drs. J. B. Bridges and H. E. Gerwig, of Downing.

The committee on credentials reported on the application of Dr. Ida M. Nulton, Lancaster, and on motion the report was received and Dr. Nulton was elected a member.

The books of the secretary-treasurer were audited



and found to be correct, showing a balance in the treasury of \$25.08.

On motion, it was voted to remit the County Society dues.

The following officers were elected for 1930: President, Dr. Ida M. Nulton, Lancaster; vice president, Dr. J. H. Keller, Lancaster; secretary-treasurer, Dr. J. B. Bridges, Downing; delegate, Dr. J. H. Keller, Lancaster; alternate, Dr. O. P. Farrington, Greentop.

There were no scientific papers read, but a number of interesting cases were reported and discussed at length.

Dr. J. H. Keller presented a clinic on complete dislocation of the shoulder, downward and forward, which was reduced with great difficulty and under complete anesthesia. An X-ray taken before and after reduction showed a complete dislocation and a perfect reduction.

J. B. BRIDGES, M.D., Secretary.

### ST. LOUIS COUNTY MEDICAL SOCIETY

The adjourned meeting of the St. Louis County Medical Society was held at the home of Dr. W. F. O'Malley, Kirkwood, March 26, 1930. The president, Dr. R. B. Denny, Creve Coeur, called the meeting to order at 8:40 p. m., with the following members present: Drs. E. O. Breckenridge, Maplewood; H. T. Coleman, Pattonville; John O'Connell, J. A. Prichard, and R. A. Walther, of Overland; C. H. Denny, Clayton; R. B. Denny, Creve Coeur; Otto J. Wilhelmi and Mary A. McLoon, St. Louis; W. F. O'Malley, Kirkwood; F. J. Petersen, Richmond Heights; John H. Sutter, University City; A. C. Hofsommer, Webster Groves. Visitors: Dr. James Lewald, of the St. Louis Training School, and Dr. W. R. Arthur, Kinloch Park.

Dr. W. R. Arthur made an appeal for a negro unit to the St. Louis County Hospital. He asked recognition in three respects: (1) A separate unit governed by the same staff as that of the County Hospital, if possible to be located at Kinloch Park, Missouri. (2) At least one negro resident physician (intern). (3) Negro nurses for the care of negro patients.

Dr. Lewald, of the St. Louis Training School for the Feeble-minded, presented a paper on "Clinical Types of the Feeble-minded," illustrated with lantern slides, which was both interesting and instructive.

Dr. Lewald's paper was discussed by Drs. Sutter, Obrock and Denny. On motion of Dr. W. F. O'Malley, Kirkwood, seconded by Dr. J. A. Prichard, Overland, and carried, a rising vote of thanks was extended Dr. Lewald.

E. E. TREMAIN, M.D., Secretary.

### ST. LOUIS MEDICAL SOCIETY

#### Special Meeting of Council, January 3

The meeting was called to order at 8:35 p. m. by the president, Dr. Cleveland H. Shutt. It was announced that the special meeting was called for the purpose of employing an executive secretary.

The report of the welfare committee was made by Dr. Amand Ravold, recommending the employment of Mr. Elmer H. Bartelsmeyer, present secretary of the St. Louis Board of Police Commissioners.

A letter was read from Dr. E. J. Goodwin, Secretary, Missouri State Medical Association, authorizing the withdrawal of funds to the amount of \$5,000 appropriated by that organization for the executive secretary's salary.

After discussion by various members, Dr. R. B. H. Gradwohl moved that the proper officers of the Society sign a contract with Mr. Bartelsmeyer, effective February 1, 1930, for a period of three years, at \$6,000 per annum. Motion seconded by Dr. W. C. G. Kirchner and carried.

Councilors present: Drs. Lee Dorsett, R. B. H. Gradwohl, John Green, John F. Hardesty, Roland S. Kieffer, W. C. G. Kirchner, H. S. Langsdorf, Sinclair Luton, Amand Ravold, C. H. Shutt and C. A. Vosburgh. Visitors, Dr. Harry M. Moore, Mr. Elmer E. Bartelsmeyer.

#### Annual Meeting of the Council, January 8

The meeting was called to order at 8:25 p. m. by the president, Dr. Vilray P. Blair.

The following were elected to membership: Active, Drs. Charles Drabkin, 1046 Missouri Building; Fred Emmert, 713 Metropolitan Building; Alexis F. Hartmann, 500 S. Kingshighway; John G. Jones, Metropolitan Building; Elmer Richman, 5003 Page Blvd.; Junior, Robert M. Evans, 4398 West Pine Blvd.; Clinton K. Higgins, Frisco Hospital; Marceine D. Klote, Lister Bldg.; George S. Littell, 500 S. Kingshighway; Cecil L. Martin, Frisco Hospital; Curtis A. Meyer, St. John's Hospital. Corresponding, Dr. Harry E. Middleton, Alton, Ill.

The application of Dr. L. A. Miesch, St. Louis Training School, by transfer from the Hardeman County (Tennessee) Medical Society, was recommended by the membership committee and received first reading.

The names of members reported delinquent for two years were assigned to individual members of the Council for investigation and report at the February meeting.

Dr. H. Unterberg moved that Dr. Carl J. Koontz be elected an Honor Member. Seconded and carried.

On motion of Dr. Unterberg, seconded by Dr. Kieffer, the president's committee recommendations were approved and the following were elected to the various standing committees:

Membership: Herluf G. Lund, chairman; Robert Mueller, George T. Gafney.

Program: Frederick C. Simon, chairman; Howard H. Bell, Lawrence D. Thompson.

Library: Anthony B. Day, chairman; Paul S. Lowenstein, Charles V. Mosby.

Endowments: Wm. W. Graves, chairman; Amand Ravold, Louis H. Behrens, Roland Hill, Vilray P. Blair, ex officio.

Hospital: Flavius G. Pernoud, chairman; Benjamin A. Wilkes, Louis H. Burlingham.

Necrology: Louis C. Herchenroeder, chairman; Wm. G. Becke, Edwin H. Rohlfing.

Disaster Relief: Malvern B. Clopton, chairman; Max C. Starkloff, Curtis H. Lohr.

The following nominations by the president were approved: treasurer, F. C. E. Kuhlmann; editor, Howard H. Bell; associate editor, Lawrence D. Thompson.

Dr. C. H. Shutt moved that the chair appoint a committee of three to devise plans for handling the Executive Secretary Fund, and that the committee's plans be presented to the Council at the March meeting. Motion seconded and carried.

Councilors present: Drs. V. P. Blair, Lee Dorsett, John Green, John F. Hardesty, Roland S. Kieffer, W. C. G. Kirchner, Harry M. Moore, C. H. Neilson, C. H. Shutt, H. Unterberg, H. S. Langsdorf. Visitor, Dr. Herluf G. Lund.

#### Meeting of Council, February 12

The meeting was called to order at 8:30 by the president, Dr. V. P. Blair.

The following were elected to membership: Active,

Drs. Myron W. Davis, 718 Beaumont Bldg.; George D. Kettlekamp, Koch; James P. Wade, 1004 Missouri Bldg. Junior: Drs. Oscar A. Carron, St. Mary's Hospital; Joseph A. Graneto, St. John's Hospital; Carl J. H. Hotz, City Hospital; Raymond G. Jacobs, City Hospital; Benjamin Margulois, City Hospital.

The application of Dr. L. A. Miesch by transfer from Hardeman County (Tennessee) Medical Society was read the second time and he was elected to membership.

Applications for corresponding membership from Dr. Otto Koch, of the St. Louis County Medical Society, and Dr. A. P. Erich Schulz, of the St. Charles County Medical Society, were presented and both were elected to membership.

Mr. Bartelsmeyer, the executive secretary, reported on the Porter Bills now in Congress, establishing a bureau for regulating the use of narcotics by physicians.

On motion of Dr. C. H. Shutt, seconded by Dr. Frank J. V. Krebs, the secretary was instructed to write a letter to the United States senators and representatives from Missouri protesting against these bills, the letters to be written at the discretion of the president.

The President announced that he had appointed Drs. C. H. Shutt, John Green and W. C. G. Kirchner as a committee for handling the executive secretary fund.

Councilors present: Drs. V. P. Blair, John Green, John F. Hardesty, Roland S. Kieffer, W. C. G. Kirchner, Frank J. V. Krebs, C. H. Shutt, H. Unterberg, H. S. Langsdorf. Visitors, Drs. Anthony B. Day, Geo. T. Gafney, F. G. Pernoud.

#### Meeting of General Society, January 28

The meeting was called to order at 8:40 p. m. by the second vice president, Dr. Charles F. Sherwin.

Dr. Samuel E. Peden reported an unusual treatment for a case of rectal fistula.

The following scientific program was given:

"Brief Discussion on General Medical Economics," by Dr. W. Antoine Hall.

"Objections to the Workmen's Compensation Law," by Dr. John H. Simon.

"Contract Medicine," by Dr. George H. Mathae.

Discussion by Drs. Wm. T. Coughlin, R. B. H. Gradwohl, E. Lee Myers, H. C. Herrick, Lawrence Schlenker; Dr. Simon closing.

The following resolutions were presented for adoption by Dr. W. F. A. Schultz, seconded by Dr. M. J. Bierman:

WHEREAS, We, the members of the St. Louis Medical Society, duly assembled in regular session, having heard, considered and by its constituents experienced the abuse, the inadequacy, unfairness, undignified, unprofessional and unethical plane of the present status of contract medicine in St. Louis, do hereby place ourselves on record as strictly and unalterably opposed to the present status of contract medicine, therefore be it further

Resolved, That those physicians who, later or after a reasonable time, persist under the present contract system, be known to stand read out of local organized medicine; be it further

Resolved, That those who undertake to reengage under contract medicine, implied or written, shall abide under the contract and under the implication by a schedule of fees having a minimum basis. A schedule of fees to be created by a special committee to be appointed by the president of this Society at an early date; be it further

Resolved, That the recommendation of this committee shall, after presentation to the Society, by adoption, be authorized by the Society and known as the "Minimum Fee Schedule," and shall be for the regulation of all members of this Society who shall or do engage under the contract medicine premises.

Dr. John Morfit moved that the resolutions be published twice in the *Bulletin* and presented for

action at the meeting following the second publication. Motion seconded and carried.

Attendance 171.

#### Meeting of General Society, February 11

The meeting was called to order at 8:45 p. m. by the second vice president, Dr. Charles F. Sherwin.

The speaker of the evening, Mr. Forrest C. Donnell, was introduced by Dr. C. H. Shutt and gave a talk on "The World Court."

Attendance 74.

#### Meeting of February 11

The meeting was called to order at 8:30 p. m. by the first vice president, Dr. John W. Stewart.

The following program was given:

"An Outline of the Physiology of the Kidneys," by Dr. H. L. White.

"The Correlation of Laboratory and Clinical Findings in Various Types of Nephritis," with lantern slide demonstration by Drs. A. P. Briggs and G. O. Broun.

"The Treatment of Nephritis as It Occurs in Children," with lantern slide demonstration by Dr. A. F. Hartmann.

"The Treatment of Nephritis as It Occurs in Adults," by Dr. H. A. Bulger.

Discussion by Drs. Louis H. Behrens, George H. Mathae, Norville Wallace Sharpe; Drs. Hartmann and Bulger, closing.

Attendance 203.

#### Meeting of February 18

The meeting was called to order at 8:40 p. m. by the president, Dr. Vilray P. Blair.

Dr. Claude D. Pickrell, Commander of Boutwell Post No. 136, American Legion, was asked to preside and Dr. Joseph C. Peden to serve in the capacity of adjutant.

The following program was given:

"The American Legion," by Colonel Harry D. McBride.

Mr. Clark McAdams, of the St. Louis Post-Dispatch, was introduced by Dr. Amand Ravold and gave a talk on "Disarmament."

Official motion pictures of battleships and naval airplanes in action, secured from the Navy Department, were shown.

Dr. R. B. H. Gradwohl made a few remarks following presentation of the pictures.

On motion of Dr. N. W. Sharpe, a standing vote of thanks was extended to Boutwell Post and the speakers of the evening.

Attendance 292.

HERBERT S. LANGSDORF, M.D., Secretary.

## WOMAN'S AUXILIARY

#### OFFICERS 1929-30

President, Mrs. M. P. Ravenel, Columbia.

President-Elect, Mrs. A. W. McAlester, Kansas City.

1st Vice President, Mrs. U. J. Busiek, Springfield.

2nd Vice President, Mrs. James F. Owens, St. Joseph.

3rd Vice President, Mrs. H. C. Brashear, Mexico.

4th Vice President, Mrs. L. G. McCutchen, St. Louis.

Corresponding Secretary, Mrs. C. M. Sneed, Columbia.

Recording Secretary, Mrs. David S. Long, Harrisonville.



Treasurer, Mrs. R. C. Haynes, Marshall.  
Auditor, Mrs. C. T. Ryland, Lexington.  
Directors (2 years): Mrs. W. W. Ford, Gordonville; Mrs. Harry F. Parker, Warrensburg; Mrs. F. H. Spencer, St. Joseph; Mrs. C. C. Cummings, Joplin; Mrs. Raymond Spivy, St. Louis. (1 year): Mrs. T. S. Fleming, Moberly; Mrs. S. F. Freeman, Springfield; Mrs. Robert McE. Schauffler, Kansas City; Mrs. Hudson Talbott, St. Louis; Mrs. J. J. Gaines, Excelsior Springs.

### MARION COUNTY AUXILIARY

The organization of the Woman's Auxiliary to the Marion County Medical Society was completed on February 19, with a membership of twenty, and very great interest was shown in the preparations for the Annual Meeting. This is most encouraging and surely makes a successful meeting a certainty.

### SCHOLARSHIP FUND

The completion of the Scholarship Fund (\$500) is practically assured by the quotas sent in and by the generosity of several auxiliaries in over-subscription, and the stimulated interest in this fine work that success always carries with it. The status of the Fund follows:

Balance March 1, 1930.....\$131.40

#### Receipts

March 14, Clay County Auxiliary.....\$11.20  
March 29, Jackson County Auxiliary.. 97.60 108.80

Balance April 1, 1930.....\$240.20

### WOMAN'S AUXILIARY, MISSOURI STATE MEDICAL ASSOCIATION SIXTH ANNUAL MEETING

#### Officers 1929-1930

President, Mrs. Mazyck P. Ravenel, Columbia.  
President-Elect, Mrs. A. W. McAlester, Kansas City.

1st Vice President, Mrs. U. J. Busiek, Springfield.  
2nd Vice President, Mrs. James F. Owens, St. Joseph.

3rd Vice President, Mrs. H. C. Brashear, Mexico.  
4th Vice President, Mrs. L. G. McCutchen, St. Louis.

Corresponding Secretary, Mrs. C. M. Sneed, Columbia.

Recording Secretary, Mrs. David S. Long, Harrisonville.

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#### PROGRAM

Tuesday, May 13, 1930—9:00 A. M. Public Library  
Registration.

10:00 A. M.—Executive Board Meeting.

12:30 P. M.—Luncheon.

6:30 P. M.—Informal Dinner. Round Table Discussion: Subject, County Auxiliaries.

Wednesday, May 14, 1930—8:30 A. M. Public  
Library

Registration.

9:30 A. M.—Opening Session, Annual Meeting of Woman's Auxiliary.

Address of Welcome—

Response—Mrs. Mazyck P. Ravenel.

Report of Credentials Committee.

Report of Officers.

Report of Chairman of Standing Committees.

Report of Nominating Committee.

Election of Officers.

New Business.

#### 12:30 P. M.—Open Luncheon

Guests: Dr. William Gerry Morgan, Washington, D. C., President-Elect, American Medical Association; Dr. T. W. Cotton, Van Buren, President, Missouri State Medical Association; Dr. W. C. Gayler, St. Louis, President-Elect, Missouri State Medical Association; Mrs. George H. Hoxie, Kansas City, President, Woman's Auxiliary to the American Medical Association; Mrs. A. W. McAlester, Kansas City, President-Elect, Woman's Auxiliary to the Missouri State Medical Association; Dr. Harriet S. Cory, St. Louis, State Chairman, Social Hygiene Committee of the League of Women Voters.

Reports from presidents of county and city auxiliaries.

Program of Woman's Auxiliary to the American Medical Association at Annual Meeting to Be Held in Detroit—Mrs. George H. Hoxie, Kansas City.

The Place of Social Hygiene in a Public Health Program—Dr. Harriet S. Cory, St. Louis.

Adjournment.

3:30 P. M.—Meeting of the new Executive Board.

## CORRESPONDENCE

### PROBABLY LATHYRISM

New London, Mo., March 10, 1930.

To the Editor:

I do not want to write an article on lathyrism. I want to say merely that the disease now featured in the daily press, especially in the Southwest, causing paralysis supposed to be due to drinking Jamaica ginger, fits alarmingly lathyrism.

Instead of the disease being due to the alcohol poison it may be caused by certain seeds used in the distillation of the alcohol in the drink, viz., the variations of vetch, chick-pea, latherus and others, possibly many others.

T. J. DOWNING, M.D.

### POSTAL INDEMNITY COMPANY LICENSED IN MISSOURI

Dallas, Texas, April 2, 1930.

To the Editor:

In the January, 1930, issue of your publication you printed a notice to the effect that this Company was not licensed in the State of Missouri.

Since this article was printed, we have been legally admitted to the State of Missouri and operate under the supervision of the Department of Insurance of the State of Missouri, and we should appreciate your printing a notice to this effect in your publication.

Respectfully,  
POSTAL INDEMNITY COMPANY,  
A. B. MARKER,  
Vice President.

## MISCELLANY

### HANNIBAL

#### Location

Hannibal, which originated in steamboat days on the west bank of the Mississippi River, has become the foremost city of northeast Missouri. It is situated at the junction of two great federal highways, Nos. 36 and 61, 130 miles north of St. Louis and 225 miles northeast of Kansas City. The city is served by the Chicago, Burlington and Quincy, the Wabash, and the Hannibal and St. Louis railroads and is the principal eastern gateway to north Missouri.

#### History

The history of early Hannibal is the story of the West; to tell of one is to speak of the other. Following the restless DeSoto, who sailed from Central American to North American mainland, discovering the mighty river called by the Indians "Missi-sepe," meaning "Father of Waters," came other adventurers. Among these were Marquette, Joliet, LaSalle and Hennepin, all braving the unknown, following the great river from its source to the Gulf of Mexico, and taking possession in the name of France.

Later, among the pioneers came Souldard, the Spanish surveyor who named the creek now called Bear Creek for the great Carthaginian, Hannibal. After a while the town at the mouth of "Hannibal Creek" was named Hannibal and the name of the stream changed to Bear Creek. The town was settled by Moses D. Bates in 1817 and incorporated as a city in 1845.

#### Educational Facilities

The educational facilities of Hannibal have kept pace with the city's growth and development. With the completion of an \$800,000 elementary school-building program, Hannibal school children are housed in modern fireproof buildings. Hannibal has seven grade schools, three junior high schools and an accredited high school. The present enrollment in these is 4,100 and parochial schools maintained by the Catholic and Lutheran churches increase the number to 4,700.

In 1928 the citizens of Hannibal pledged \$232,000 for the establishment of a Baptist college at Hannibal. The gift made it possible to acquire an adequate campus and to erect new buildings. The new Hannibal-LaGrange College continues the work and ideals of LaGrange College, for seventy years located at LaGrange;



Fig. 2. St. Elizabeth's Hospital.

it is a junior college, fully accredited by the University of Missouri.

College Heights, the site of the college, lies to the northwest of Hannibal, the campus overlooking the Mississippi River. The plant, which was opened for occupancy in September, 1929, cost over \$300,000 and is one of the most modern of college plants. There are three buildings,—the administration building and two dormitories. All are of English Gothic style. Hannibal-LaGrange College has the double advantage of an old college with a rich history and of a new location with new buildings, new equipment and new life.

#### Hospitals

Hannibal is fortunate in having two modern and well-equipped hospitals, both of them open to all reputable practitioners of medicine. The hospitals have a combined bed capacity of over 150 beds. They are fully accredited by the Council on Medical Education and Hospitals of the American Medical Association.

Levering Hospital was built in 1901, a gift of Mr. A. R. Levering, and has continuously served Hannibal and the surrounding communities. It is a city institution taking care of the charity cases within the limits of the city and also accommodating private patients of attending physicians. The hospital is managed by a board of control. Its president is Dr. I. E. Hill who is also physician in charge. The hospital has an accredited training school for nurses. An addition, costing \$125,000, donated by Mr. W. B. Pettibone, has just been completed bringing the bed capacity to 78 beds and affording modern equipment and conveniences in every department.

St. Elizabeth's Hospital was founded and built in 1914 by the Sisters of St. Francois, and serves the private patients of physicians in Hannibal and the surrounding communities. In 1928 an addition to the original hospital was built increasing the bed capacity to 75 beds and affording modern facilities throughout. The officers of the organized staff are: Dr. A. L. Shanks,



Fig. 1. Mississippi River From Riverview Park.





Fig. 3. Levering Hospital.

president; Dr. E. R. Motley, vice president; Dr. W. F. Francka, secretary.

#### An Industrial Center

Some idea of the importance of Hannibal as a manufacturing center may be gleaned from the fact that while it is the seventh city of Missouri in population it is the fourth industrial city. Sixty-three factories operate in Hannibal. The phenomenal industrial growth has been occasioned by the city's many distinct industrial advantages, such as transportation facilities, efficient labor, favorable power rates, raw materials and proximity to large markets.

#### Points of Interest

Chief among the show places in and near Hannibal are the things relating to Mark Twain, who lived in Hannibal and whose most popular book, "Tom Sawyer," was written about Hannibal and the surrounding country. Here is the house built by his father in 1844, Mark Twain's home until he left to become a Mississippi River pilot. In 1911, the old home was bought by Mr. and Mrs. George A. Mahan, and under their direction it was completely renovated, every care being taken to preserve it exactly as it was in Mark Twain's time. Lovers of Mark Twain, as well as of the town which was his home and theirs, the Mahans deeded the place to the city to be kept as a memorial. The home is open to visitors. It contains numerous relics and pictures.

Just outside of Hannibal is the famous cave in which Tom Sawyer and Becky Thatcher were lost. "McDougal's Cave," it was called in the story of Tom's adventures, though now it is known as the Mark Twain Cave. Each year, thousands of tourists come to Hannibal to visit the cave and other points of interest. As one follows through the winding passages of the cave many strange and mysterious sights are observed. Carved on the rocks with knives or smoked there with candles, are dates long before the Civil War, and names and initials everywhere. Stalagmites that have been slowly growing up from the ground for ages, built by the water drip from stalactites overhead, may be seen in many places. Cameron Cave, a newly discovered cave within a stone's throw of the Mark Twain Cave, also interests many visitors.



Fig. 4. Statue of Mark Twain in Riverview Park.

At the foot of Cardiff Hill stands the monument of Tom Sawyer and Huckelberry Finn. This statue was the first in the world to be erected to literary characters. It was presented to the city by Mr. and Mrs. George A. Mahan and their son, Dulany.

Few cities in the United States, large or small, can offer a more attractive park than Riverview Park comprising over two hundred acres and including a mile of picturesque Mississippi River bluffs. There are miles of roads which take the visitor through wooded dells and along the crest



Fig. 5. Mark Twain and His Boyhood Home.



Fig. 6. Entrance to Mark Twain Cave.

of hills two hundred feet above the river. A monument of Mark Twain, erected by the State of Missouri, stands in Riverview Park overlooking the river. The park is one of the seven beauty spots of Missouri recently selected by a group of representative Missourians. The park was presented to the city by Mr. W. B. Pettibone.

Of the points of interest at Hannibal many were made possible by the generosity of outstanding citizens. Among these are the public library, Levering Hospital, Central Park, Y. M. C. A., playgrounds, churches, Home for Orphan Children, and school buildings.

#### Public Health and Welfare

A nurse employed by the local chapter of the Red Cross directs health education in the schools, through clinics, and provides nursing service. A full-time school nurse is employed by the board of education. A full-time health department is operated by the City of Hannibal, the county and state boards of health. The personnel consists of a health officer, two nurses, technician, sanitary inspector and clerk. Relief work is conducted by a number of local agencies.

#### Churches

The religious life of the community, the manifestation of which is shown in more than twenty churches, is active and alert.

#### A Convention City

Hannibal is an ideal convention city, easily accessible to points in any direction. Splendid railway facilities are available over the three



Fig. 7. Monument of Tom Sawyer and Huck Finn at Foot of Cardiff Hill.

railroads operating through Hannibal. In addition to rail transportation Hannibal is the hub of the highway system of northeast Missouri. A paved highway, No. 36, extends west across the state and U. S. 61 gives direct connection with St. Louis and points south. Both the east and west federal highway and the primary north and south highway are intersected by numerous high-type roads from all parts of the state.

Hannibal has excellent hotels, restaurants and cafes. The visitor will find Hannibal an enjoyable place in which to spend several days. Amusement is offered by three theaters, the largest having a seating capacity of 1600. The Hannibal Country Club operates a nine-hole golf course. Club rooms are maintained by a number of organizations. A modern building owned and operated by the Y. M. C. A. provides the usual social and recreational facilities.

#### Future

Hannibal is a progressive and prosperous municipality, bidding fair to continue as the metropolis of northeast Missouri, offering to the prospective citizen an opportunity to take advantage of an ideal home city. The city has made marked progress during the last decade under the leadership of a progressive, aggressive and hospitable citizenry.

## TRUTH ABOUT MEDICINES

**ZONITE DECLARED MISBRANDED.**—Zonite is another of the many hypochlorite preparations which arose from the work of Carrel and Dakin during the war. It has been advertised like a typical "patent medicine" under the firm name of the Zonite Products Co. The propaganda for Zonite is, in effect, capitalization on the work of Carrel, Dakin and others, and the method of exploitation has been that typical of the nostrum business. Chemically, Zonite, after dilution with equal parts of water, is claimed to be essentially the same as surgical solution of chlorinated soda. According to a recent notice of judgment, Zonite was declared misbranded in that certain statements were false and misleading. Zonite has been exploited to both the physician and the public. It goes without saying that it has not been accepted by the Council on Pharmacy and Chemistry for inclusion in New and Nonofficial Remedies. (Jour. A. M. A., December 7, 1929, p. 1830.)



**BICHLORIDOL.**—Bichloridol is a proprietary preparation of corrosive mercuric chloride suspended in a "palmitin" base, intended for intramuscular administration. It is sold in compressible ampules called collapsibles. This preparation was formerly marketed by the H. A. Metz Laboratories, Inc., but is now marketed by the Duke Laboratories, Inc. In 1925 the Council on Pharmacy and Chemistry rejected Bichloridol because it was marketed with indefinite statements of composition and under a nondescriptive name. The A. M. A. Chemical Laboratory reports that it analyzed Bichloridol because of inquiries received, one inquirer writing, "One half to one grain a week gives practically no reaction and likewise mighty little therapeutic effect." The Laboratory found the preparation to contain only from one fifth to one tenth of the mercuric chloride claimed. The Laboratory points out that a discrepancy of this magnitude is inexcusable and comments on the desirability of physicians confining their use of proprietary preparations to products accepted for New and Nonofficial Remedies. (Jour. A. M. A., December 21, 1929, p. 1971.)

**THE NICOTINE CONTENT OF TOBACCO.**—About a year ago, the Connecticut Agricultural Experiment Station published a report which showed that the claim that certain tobaccos has been "denicotinized" was largely without foundation, for it was found that there were, among ordinary tobaccos, brands in which the nicotine was either not in excess or was actually lower than that present in the processed tobaccos, sold under the implied claim that they were practically free from nicotine. The station has now issued a further report giving the results of the analyses of tobaccos of both the processed and unprocessed types. Altogether, eleven brands of unprocessed pipe tobacco have been analyzed and found to have an average total nicotine content of 2.04 per cent; four brands of so-called denicotinized pipe tobacco gave an average total nicotine content of 1.3 per cent; ten brands of ordinary unprocessed cigars gave an average total nicotine content of 1.51 per cent, while seven brands of processed, or so-called denicotinized, cigars gave an average total nicotine content of 0.95 per cent. In the cigaret field forty-six analyses were made of ordinary unprocessed products, giving an average total nicotine content of 1.77 per cent, as compared with 1.09 as the total nicotine content of twelve so-called denicotinized brands. From this work it can be seen that while some of the so-called denicotinized products contain less nicotine than the ordinary unprocessed brands of the same class, they still contain material quantities of nicotine. The main difficulty in determining whether or not the claims made by manufacturers of so-called denicotinized tobacco products are reasonable lies in the failure to know the amount of nicotine in the various tobaccos *before* they were processed. However, this work permits the tobacco user to arrive at some worth-while conclusions on this point. It should not be forgotten, also, that nicotine is probably not the only harmful element in tobacco smoke, and that Dixon has reached the conclusion that moist tobacco produces much more serious effects than dry tobacco, and has even suggested that the water content of tobacco might be a more harmful factor to the smoker than the nicotine content of the tobacco, and that the condition of the tobacco and the form in which it is smoked are probably more important factors in determining the amount of nicotine that the smoker gets than is the actual nicotine present in the original tobacco. (Jour. A. M. A., September 21, 1929, p. 938.)

**CASCARA-AGAR NOT ACCEPTABLE FOR N. N. R.**—The

Council on Pharmacy and Chemistry reports that, under the name "Cascara-Agar," the Reinschild Chemical Co. markets a preparation stated to contain "15 per cent of a watery percolation of two-year-old cascara bark, which is processed into No. 1 Agar, cut to size" and is recommended for use in constipation. It is stated on the trade package that the preparation is: "A harmless vegetable addition to breakfast food. Each teaspoonful contains a mild and specially prepared solution of Cascara Tea." Since no statement as to the amount of cascara contained in the product was given, the firm was asked to make a plain statement of the constituents of the product. The firm replied giving the method of preparation of the product. However, since no details were given as to the method used to "debitter" the cascara, one cannot say how much of the active principle of cascara was lost in the process of preparation and therefore the amount of cascara in a given quantity of the finished product cannot be judged. Experiments carried out lead to the conclusion that "Cascara-Agar" contains at most only a trace of cascara, and that it is misleading to call the preparation "Cascara-Agar." Information was received that the Reinschild Chemical Co. still markets "Regulin," a product which has been stated to be prepared in the same manner as is "Cascara-Agar." Since the Council does not accept an article under one name if an essentially similar product is marketed by the same firm under another name, this makes "Cascara-Agar" further objectionable. The Council declared "Cascara-Agar" unacceptable because it is an indefinite mixture marketed under a misleading name with unwarranted therapeutic claims, and because an essentially similar product is marketed by the same firm under another name. (Jour. A. M. A., October 26, 1929, p. 1309.)

**BOROCAINE NOT ACCEPTABLE FOR N. N. R.**—The Council on Pharmacy and Chemistry reports that under the proprietary, nondescriptive name "Borocaine," Sharp & Dohme, Baltimore, market procaine borate, the boric acid salt of the base procaine. The product was placed on the market on the basis of work published by Copeland and Notton, who adopted the name Borocaine to designate the borates of various anesthetic bases with which they experimented and who, according to Sharp & Dohme, gave their approval to the British Drug Houses to manufacture procaine borate under the title Borocaine. The A. M. A. Chemical Laboratory examined the product marketed as Borocaine and reported that it was the borate of the base procaine—that is, procaine borate. From a study of the literature it was concluded that the procaine borate studied by Copeland and Notton agreed essentially in composition with the procaine borate prepared and described in 1910 by Einhorn and Uhlfelder. Since procaine borate was previously described in the literature, the Council could not recognize the name Borocaine on the score of novelty, and since neither Sharp & Dohme, the British Drug Houses nor Copeland and Notton discovered the therapeutic value of procaine or even the properties of procaine when contained in a solution in which ionization of the procaine salt does not occur, the Council could not recognize the name Borocaine under the clause which permits the recognition of a proprietary name for a previously known substance discovered to have therapeutic value. The Council therefore declared "Borocaine" unacceptable for New and Nonofficial Remedies because the application of a proprietary name to procaine borate is considered not to be in the interest of rational therapy. (Jour. A. M. A., October 26, 1929, p. 1309.)

## BOOK REVIEWS

**ACUTE INFECTIOUS DISEASES.** By Jay Frank Schamberg, A.B., M.D., Professor of Dermatology and Syphilology in the Graduate School of Medicine, University of Pennsylvania, etc., and John A. Kolmer, M.Sc., M.D., Dr.P.H., D.Sc., LL.D., Professor of Pathology and Bacteriology in the Graduate School of Medicine of the University of Pennsylvania, etc. Second edition, thoroughly revised. Illustrated with 161 engravings and 27 full-page plates. Philadelphia: Lea & Febiger. Price \$10.00.

This second edition has been extensively revised and has had a number of new chapters added. The first part is similar to the former edition but gives the latest authoritative data on vaccinia including the history, hygiene, technic, symptoms and complications of vaccination, and the relation of vaccination to smallpox, chickenpox, scarlet fever, measles, rubella, typhus fever and diphtheria. The latter part of the book is entirely new material. New chapters have been added on prevention of diphtheria, Vincent's angina, serum anaphylaxis, erysipelas, mumps, whooping cough, cerebrospinal meningitis, fourth disease, and erythema infectiosum.

The clinical phases of the chapters on vaccinia, smallpox, scarlet fever, measles, rubella, and typhus fever have been in considerable part retained.

Much space is allotted to the subject of vaccination and the newer tests of susceptibility and immunity of scarlet fever, diphtheria, and erysipelas. It is a sad commentary upon the intelligence and judicial mindedness of certain elements of the community that it is still necessary to stress the evidence in favor of vaccination.

The advance in knowledge and in methods of handling acute infectious diseases is comprehensively set forth in the book by two acknowledged authorities, making the book one of importance and one that should be in the library of every physician.

**MATERIA MEDICA AND THERAPEUTICS.** Including Pharmacy and Pharmacology. By Reynold Webb Wilcox, M.A., M.D., LL.D., D.C.L., Lieutenant Colonel, Auxiliary Reserve, United States Army; Consultant in Medicine to St. Mark's Hospital, etc. Twelfth edition. Revised in Accordance with the United States Pharmacopoeia X and the National Formulary V. With an Index of Symptoms and Diseases. P. Blakiston's Son & Co., Inc., 1012 Walnut Street, Philadelphia. Price \$5.00.

The author's preface suggests that many advances have necessitated the division of the work into two distinct parts, the first part devoted to materia medica and pharmacy, the second dealing with pharmacology and therapeutics. The reviewer thinks this is a handicap, for the average busy doctor does not like to refer to different parts of a book to investigate one topic. For example, calcium should not be divided as suggested above; the materia medica, pharmacy, pharmacology and therapeutics of calcium should be presented in the same chapter.

The reviewer thinks this book should discuss such subjects as novasurol, pyridium, caprocol, acriflavine, the latest suggestions on application of smallpox vaccine, the mixture of serum and arsenicals in spinal therapeutics; none of these are found. These suggestions are made with a feeling of extreme uncertainty as the book is now in its twelfth edition.

E. A. B.

**THE VOLUME OF THE BLOOD AND PLASMA IN HEALTH AND DISEASE.** By Leonard G. Rowntree, M.D., and George E. Brown, M.D., Division of Medicine, The Mayo Clinic and The Mayo Foundation, Rochester, Minnesota. Illustrated. Philadelphia and London: W. B. Saunders Company. 1929. Cloth, \$3.00 net.

The authors are peculiarly qualified to write this review as the early work upon blood volume determinations was done largely under their supervision. They present in the early chapters a very fair review of the various methods which have been advocated for determining plasma and blood volume. In conclusion of this portion of their discussion they state frankly that the dye method which they use is subject to very valid criticisms but that results by its use are sufficiently constant to make clinical observations significant. The details of the technic of determining plasma volume and total blood volume are clearly presented.

Numerous tables are given showing the values obtained in a large series of essentially normal individuals. In these tables they bring out the difficulties of interpretations due to variations in body conformity. The normal range of blood and plasma volume is stated both in relation to kilograms of body weight and centimeters of surface area. The normal variations as they occur at different ages are recorded, as are also the fluctuations of blood volume and plasma volume in normal subjects when repeated determinations are made.

In the latter portion of the book they discuss comparatively short series of determinations in various clinical conditions. The findings in polycythemia vera and the leukemias are so marked that total blood and plasma volume determinations will probably be found of considerable practical value. Hemolytic anemia and obesity are other conditions in which the variations from the so-called normal are quite marked. The remaining clinical conditions studied show changes but the practical application of such studies is rather obscure as yet. Interesting figures are given in relation to various types of edema and changes in blood volume and blood plasma. The final chapter emphasizes the importance of plasma and plasma constituents.

This monograph is a very excellent review of the entire subject of plasma volume and blood volume and will be welcomed by the investigator along these lines. The general practitioner, however, will find little practical use for the book, as further study and further data must be available before we are able to apply such determinations as a clinical diagnostic procedure in cases which are not already definitely diagnosed.

L. T.

**AN INTRODUCTION TO THE STUDY OF HUMAN ANATOMY.** By R. J. Terry, A.B., M.D., Professor of Anatomy in Washington University. New York: The Macmillan Company. 1929. Price \$3.50.

Doctor Terry's new book attempts to stimulate the beginning medical student into becoming an independent worker. The volume provides an outline of the structures encountered and essential directions for dissection. It includes many questions for consideration. There is very little description but attention is directed to principal points with intent of urging verification of description in systematic books. Obviously, it must therefore be used as a guide for dissection in connection with a systematic anatomy text. The book emphasizes embryological, anthropological, and genetical viewpoints, and variations in structure. Forms are provided for tabulation of data on the subject dissected. A



selected list of references to the literature which opens many interesting branches of anatomical and biological study is appended. E. A.

**X-RAY TECHNOLOGY.** The Production, Measurement and Applications of X-Rays. By H. M. Terrill, Ph.D., Associate in Physics, Institute of Cancer Research, and C. T. Ulrey, Ph.D., Research Physicist, Westinghouse Lamp Company. New York: D. Van Nostrand Company. 1930. Price \$4.50.

This is a scientific work written by and for physicists giving the practical and the theoretical aspects of X-ray measurements. While much in the book is useful to the physician's laboratory, the book deals mostly with X-ray engineering problems. For the technician who desires to advance himself and to experiment the volume will prove very instructive.

Practically all subjects pertaining to X-ray generation are well covered. The book is not intended for, nor would it be of any service to the laboratory doing diagnostic work. E. H. K.

**HEMORRHOIDS, THE INJECTION TREATMENT AND PRURITUS ANI.** By Lawrence Goldbacher, M.D., Philadelphia. Illustrated with 31 half-tone and line engravings. Some in colors. Philadelphia: F. A. Davis Company. 1930. Price \$3.50.

Some form of injection treatment for hemorrhoids is used by the majority of proctologists today. The method has been so abused by quacks and charlatans that it has had a hard fight to gain its proper place in our medical armamentarium. Its place will be found only if used by qualified proctologists, using improved technic and standardized solutions upon selected cases. Therefore any book which will help to dispel prejudice and still not carry us away by enthusiasms is welcome. Dr. Goldbacher's work is such a book.

The chapter on anatomy is brief, which is well. The fact that the surgical treatment of external thrombotic hemorrhoids could not be kept out of a book dealing with the nonsurgical treatment of hemorrhoids, is proof that the method has its limitations, and that proper diagnosis is necessary for its successful use. His method for the local treatment of pruritus ani with phenol and oil solution is interesting.

The instrument of his own design, the anascope-speculum, is the most important contribution in the book. For all general purposes and especially the removal of polyps, injections and diagnosis in certain cases, this instrument appears to be better than most of those upon the market.

The usefulness of such specialized books for the general practitioner is doubtful. The injection treatment for hemorrhoids has many pitfalls for the inexperienced, and success in this as in surgery requires practice, judgment and skill.

The writer is to be commended for his brevity. F. B. C.

**PRACTICAL LOCAL ANESTHESIA AND ITS SURGICAL TECHNIC.** By Robert Emmett Farr, M.D., F.A.C.S., Minneapolis, Minn. Second edition, thoroughly revised. Illustrated with 268 engravings and 16 plates. Philadelphia: Lea & Febiger. 1929. Price \$9.00.

The appearance of a new edition of Farr's book on local anesthesia is a welcome event. Anyone who reads this book carefully must conclude that it is the best which has yet appeared in any language. For comprehensiveness and soundness of principle there

is little to be desired. The author, of course, features his injector and rightly so. It may be predicted that this machine will be a familiar object in well-appointed operating rooms in the future. Those who have attempted to invent a like machine may well be pardoned if they regard the achievement with envy. Little suited for small operations, it is desirable where wide areas are to be operated on. One recoils a little at the statement of the author that large amounts of anesthesia are "fairly safe." The book as a whole will be appreciated more by those experienced in the fundamentals of local anesthesia than by the beginner. At the same time one seeks in vain for something the beginner might ask that is not fully answered.

Local anesthesia succeeds best in the hands of a good surgeon. Quite aside from the value of the book as a guide to the use of local anesthesia it is well worth reading for its value in presenting sound principles of surgery.

The book proves again that photographs intended to show details of an operation are wholly useless. Any area covered with blood cannot be photographed with any hope of securing detail. There is a notable diminution of gruesome pictures which, the author explains in the preface, are no longer needed since the public has now been educated to the possibilities of local anesthesia. Figure 82, however, causes one to wonder whether the person depicted had been masticating a hand grenade or is being operated on. Also, the friendly, round-faced little chap in Figure 81 seems to be enjoying a joke on the surgeon—the question being whether or not he had a tuberculous lesion. One wonders how the thoughtful person shown in Figure 55 got into a book on local anesthesia. Perhaps he was a facetious individual who wrote a review for the first edition. It is a relief to learn from the legend that the bump is an endothelioma. In Figure 88, one is not so much surprised to note that the anesthesia admits traction on the goiter as that the vessels would stand it. Ancient and modern history come in conflict in the presentation of Pratt's speculum. Certainly as a tester of the efficiency of the local anesthetic nothing since the time of rack and wheel is in the same class with Pratt's rectal speculum.

However, one lays the book aside with the feeling that he has absorbed a banquet. While he may not have liked the spinach, soup, meat, and gravy were most satisfying. A. E. H.

**PRINCIPLES AND PRACTICE OF ELECTROCARDIOGRAPHY.** By Carl J. Wiggers, M.D., Professor of Physiology in the School of Medicine of Western Reserve University, Cleveland, Ohio. With 61 illustrations. St. Louis: The C. V. Mosby Company. 1929. Price \$7.50.

There are a large number of books being presented to the medical profession on the subject of electrocardiography. Dr. Wiggers for several years past has been conducting practical courses in this subject and through this experience has had ample opportunity to observe the most likely methods of satisfactorily presenting it to those who expect to use this newer aid in cardiology in their clinical work.

The book is divided into three parts. The first part describes the instrument's availability, the physics involved and the underlying principles of electrocardiography. Part two explains the normal E. K. G., the physiology and aberrations that occur in disease. The third part is presented in a fashion that will enable the beginner to "selftrain" in the use of electrocardiograms in his heart cases.

The book is well printed on good paper and the illustrations are excellent. L. S. L.

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### ORIGINAL ARTICLES

#### PRESENT DAY PNEUMONIA IN CHILDREN

EDWIN HENRY SCHORER, M.D.  
KANSAS CITY, MO.

If we are to compare the symptoms of pneumonia in children today with those published in the textbooks of the late nineties and the first fifteen years of the present century we must say our pneumonias in children have changed markedly.

In those times, lobar or croupous pneumonia was described as an inflammation of the lungs with varying degrees of toxemia, terminating usually by crisis. The etiological factor was regarded as the pneumococcus of Fraenkel. While there might have been slight catarrhal symptoms the disease generally set in abruptly, with fever, increased respirations, and the full-fledged disease was there.

Bronchopneumonia was recorded as an inflammation of the capillary bronchi and lobular structures (alveolar ducts and alveoli) caused by any of a number of different bacteria, either as a primary or secondary affection. Holt regarded about thirty per cent as primary, but this was believed by many to be too low. Again, bronchopneumonia was supposed to be the pneumonia of children, lobar or croupous pneumonia existing infrequently. We can have no doubt that the observations made were correct and we ourselves have generally been in practice long enough to know we found them correct; but, are conditions so at present?

With the entrance of the United States in the World War examinations of sputum from pneumonia patients soon showed that only a small percentage were type pneumococci but that the type four pneumococci, streptococci, diplococcus catarrhalis, and influenza bacilli predominated. This varied bacteriology has persisted. In more recent books on pediatrics even pure lobar pneumonia is not classified as being caused by the *Diplococcus pneumoniae* of Fraenkel.

We now find in most of the pneumonias in children a conjunctivitis, rhinitis, tracheobron-

chitis or bronchitis. As in all severe infections, our greatest interest centers in the part of most importance in determining prognosis—the pneumonia—but we usually find the whole or a large part of the respiratory tract is involved.

We seldom see the sudden onset of pneumonia we previously observed. It formerly was a good surmise that in the winter months sudden high fever with convulsions was the beginning of a pneumonia. Now we have rhinitis, a “cold,” persistent vomiting, craving for water, pain in the abdomen, frequent or infrequent but offensive stools, illness for a day or two before the pneumonia appears.

*Author's Cases.*—The pneumonias seen by us in private practice in the past five years number one hundred and eighty-three. While the differentiation between lobar pneumonia and bronchopneumonia has value only as far as prognosis is concerned we have tried to differentiate between them.

Bronchopneumonia we call a pneumonia with either a gradual or sudden onset, usually vomiting in the beginning, a continuous fever but remissions in the morning, increased respirations, early rales, later the breathing becoming bronchial, breath sounds increased and after the third or fourth day there may be dullness over the area of greatest infiltration.

Lobar pneumonia comes on more suddenly; there may be convulsions, the fever is high, there may be a chill, pain in the involved side; abdominal pain even to suggest appendicitis may be present if the pneumonia is in the right lower lobe; there may be an expiratory grunt, herpes, flushing of the cheek, over the involved area a sighing higher pitch breath or crying sound on auscultation; while early there may be no dull area there may be increased resonance over the uninvolved portion of that side. The temperature remains high throughout and crisis in the original area occurs on the fourth or fifth day; if there is extension to another lobe the crisis for this comes on the third day.

We have called bronchopneumonia and croupous pneumonia of influenzal origin, if influenza existed in the other members of the family. On this basis our one hundred and eighty-three cases are divided as follows:



	No. of Cases	Disseminated	Right Side				Left Side		
			Upper	Middle	Lower	Entire	Upper	Lower	Entire
Bronchopneumonia (Influenzal)	47	20	1	0	6	11	2	4	3
Lobar pneumonia (Influenzal) ..	59		11	3	22	6	5	10	2
Lobar pneumonia.....	46	1 (Double)	8	1	17	0	6	13	0
Measles .....	12	3	0	2	2	0	3	2	0
Pertussis .....	5	5							
Scarlet fever.....	2				1			1	
Septic sore throat.....	2	2							
Tonsillitis .....	1				1				
Tonsillectomy .....	4				3			1	
Ether .....	1				1				
Otitis .....	1				1				
New-born .....	3	1				1	1		

Appendix symptoms occurred six times in the right lower and one time in left lower pneumonia. Extension from one lobe to another occurred five times. Otitis media occurred ten times, all in influenzal pneumonias. Convulsions occurred in eight cases; six of these were lobar pneumonias. Empyema followed four times in influenzal and seven times in pneumococcus pneumonia. Of these eleven cases (7.2 per cent of the cases in which pneumonia was the disease) ten were with lower lobe pneumonia, seven of the right lower lobe.

Ten of the total number died—three new-born, four infants with pertussis, one with measles, one double and one right-sided influenzal pneumonia. This gives a death rate of 1.3 per cent of the cases in which pneumonia was the only disease, and 5.46 per cent of all cases in which pneumonia played a part.

As was said earlier, it is not so important from the standpoint of the welfare of the child to determine whether we have lobar or bronchial pneumonia, even as far as prognosis it is not so important but pneumonia in new-born, with measles and whooping cough has a less favorable prognosis.

*Clinical Course.*—Nearly all pneumonias in children involve especially one or more lobes and ultimately there is dullness on percussion and tubular or sighing breathing over that area. Then on the fourth or fifth day the child apparently is much sicker, the fever goes to 105 or 106 degrees F., there is cyanosis and if we did not know that pneumonia (especially lobar) seldom is fatal in children, death would seem imminent. It is at this time parents become worried and consultation is asked, but then is when we can predict the crisis. Soon there is sleep, perspiration and there may be a sudden drop of temperature. The decided drop in temperature does not occur as frequently in children as in adults but the temperature goes down to 101 or 102 degrees F.; the next day it may be somewhat higher but falls still lower. Often, before the crisis we may find crackling rales but not always, but surely the dullness seldom disappears at the crisis and even two or

three days after the crisis, when the child is quite well and has little or no fever, there still is dullness. Sometimes within a few hours after the crisis there come new symptoms and a new lobe may be involved; for this new involvement the crisis will appear about the third day.

*Convalescence.*—After the crisis the child feels better, breathes easier, is willing to eat and sleep. Now is the time to feed the child, for after several days like this the breathing may become labored, there may be a cough and varying degrees of fever. In children the pleura frequently has fluid during pneumonia and this becomes purulent in about one case in twenty. Pneumococcus empyema is most frequent. (In our series seven out of forty-five cases.)

*Coexisting Involvement.*—Because most physicians must examine adults' and children's chests, between which there are marked differences in the normal, because children have so many "noises" in bronchitis, asthmatic bronchitis, capillary bronchitis, bronchopneumonia and lobar pneumonia, because children do not expectorate well, do not cough for the same reasons adults do nor do they cough with the same characteristics, because children do not always tell where their pain is, and because in the past few years and at the present time upper respiratory infection is so common,—for all these reasons the diagnosis of pneumonia in children is not always easily made. What we need to diagnose in these infections are the conditions of greatest importance in prognosis and treatment. Most of the treatment, except good care, handling and meeting emergencies, is superfluous in pneumonia; but in otitis media, empyema, sinusitis and similar conditions, specific measures are indicated. This and the generally good prognosis in pneumonia should deter us from being satisfied that pneumonia is all the child has and, if it dies, keep us from consoling ourselves that death was due to the serious disease, pneumonia. Even if a child has pneumonia, the ears, sinuses, throat, abdomen and central nervous system should be examined and if necessary properly treated.

**Diagnosis.**—To make the diagnosis it is a good plan to obtain a good history, observe the child lying in bed, then go over the head, especially the ears, tonsils, cervical glands, sinuses and antra, then the abdomen to be certain that appendicitis does not exist, examine the urine to exclude pyelitis, go over the reflexes and signs to exclude meningitis, and then examine the chest carefully, both front and back. Unless the child is seen after the second or third day there will be no dullness but there may be crackles and sighing high-pitched breathing in the lobe involved. If there is no otitis, appendicitis, or meningitis, an increased white blood count is of value. It makes little difference whether you know exactly what lobe is involved but it is important to determine this so as not to call the disease pneumonia and find later that we have an otitis media that may lead to a mastoiditis requiring operation.

**Empyema.**—After the pneumonia has progressed for five or six days and there is improvement we should be slow in stating that we have an unresolved pneumonia for this is rare and we often have to deal with a mastoid, sinus or empyema. If we are sure everything else is clear and still there is cough and fever of some degree we should make another white blood count. If the temperature is still up, look for fluid where the pneumonia occurred, and do not depend on absent breath sounds for they may be present, but percuss lightly and if fluid is diagnosed wait a few days, say twelve to fourteen days after the beginning of the pneumonia, then with the child sitting up in bed insert a needle where the greatest dullness exists. This may be over an area of only two to three centimeters in diameter. The reason for waiting after diagnosing the presence of fluid is to let it become purulent enough to resect a rib and put in a tube. This latter procedure gives the best results; repeated withdrawals seldom cure the condition and resection usually must be resorted to.

**Treatment.**—In our treatment of pneumonia the child is kept in bed, assuming the position it likes best. In bronchopneumonia especially the child is allowed to sit on the mother's or nurse's lap or propped up in bed for a time each day. During the febrile stage no sweet milk is given, especially if there are abdominal symptoms or vomiting. Instead, give orange juice, acidophilus milk, broth, cereal, rice, gelatine in small quantities frequently. Whiskey may be given in doses of twenty drops to one teaspoonful every three hours and tincture digitalis, minims four or five every six hours. Mustard plaster, made of one tablespoonful of mustard to three of flour, left on until red (five

to ten minutes) and followed by camphorated oil, may be applied to the chest both front and back every three hours at first and less frequently later. No purgatives are given. If there is constipation or distention, give enemas, and if there is ileus give soda, one teaspoonful and glucose one teaspoonful in an ounce of water per rectum, and hold for ten to twenty minutes, two to four times a day. If the pneumonia is of influenzal origin give calcium, sodium and potassium to help overcome the acidosis. For stimulation, should it be necessary, give whiskey ten to twenty minims, digitalis, caffeine, camphorated oil, or nitroglycerine hypodermically, or inhalations of oxygen at intervals as may be indicated.

In conclusion, what I want to emphasize is that pneumonia of all types exists in children; that nearly all of these localize themselves in one or more lobes so we can distinguish them from bronchitis and other conditions; that it makes little difference if we diagnose bronchopneumonia or lobar pneumonia but that we should find the area of pneumonia so as not to lose sight of localization in another organ or part of the body which may require interference; to remember that pneumonia can exist with other localizations and that the pneumonia will probably take care of itself while an otitis media may be painful yet the pain could be relieved and irreparable damage be avoided; that the white blood count is of value in the diagnosis of pneumonia and empyema, the blood count being made at the time of the diagnosis of pneumonia and again ten days later if the child is not well.

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## DIATHERMY OF THE RECTUM AND PELVIC COLON\*

PRELIMINARY REPORT

HORACE W. SOPER, M.D.

ST. LOUIS, MO.

Surgical diathermy has been developed to such an extent that it is largely used by the urologist, general surgeon and gynecologist. It does not appear to have been used much in the treatment of rectal growths. My interest in the subject began about three years ago when I employed it for the removal of rectal polypi. Later on I used it to check hemorrhage from inoperable and recurrent cancer of the rectum. Finally I destroyed small early carcinomas by diathermy and used it on larger growths in more advanced cases regarded as inoperable be-

\* Read before the St. Louis Medical Society, January 21, 1930.



cause of the patients' poor physical condition. I also used it successfully in tuberculous ulcer of the rectum.

The rectum is an ideal field for the employment of electrocoagulation. It is devoid of sensory nerves excepting in the anal canal; above this region no anesthetic is required. Moreover, it is open to inspection and repeated treatments.

The major advantages of surgical diathermy may be summed up as follows: Tissues are coagulated to any desired depth; the blood and lymph vessels are sealed lessening the danger of metastasis in malignancy; it leaves a flexible elastic scar with little or no tendency to contraction. In this respect it is far superior to radium with its resulting infiltration and connective tissue formation. We see many cases of rectal stricture following the use of radium in gynecology. The eschar that forms after diathermy treatment is characteristic in appearance. It is grayish-white in color and forms a protective layer under which new granulation tissue is forming. It requires about three weeks' time for the eschar to become detached.

I use the bipolar method with a spark strong enough to char the tissue quickly. One treatment suffices for a small growth or ulcer. The larger growths are attacked gradually, only a small area being sparked at the first treatment. If a large piece of tissue is destroyed at one time the patient may experience a severe reaction, probably from the rapid absorption of toxin.

The technic is briefly as follows: In growths and ulcers in the anal canal a 10 per cent solution of cocaine is introduced on a small cotton applicator and allowed to remain for five to ten minutes. If the fissure or ulcer is deep and indurated a 1 per cent solution of novocaine should be injected under its base.

Growths and lesions in the ampulla recti and pelvic colon require no anesthetic. The patient is placed in the knee-chest posture and thin fecal matter, blood and pus removed by means of Gray's suction pump. A specially constructed hard rubber proctoscope is then introduced and the area sparked with a small pointed electrode. The resulting smoke and secretion is removed by the suction apparatus and more tissue destroyed as desired. In large soft growths the suction apparatus may be used as a sort of curet to break up small masses and remove them from the field.

#### POLYPI

The ordinary small pedunculated mucous polyp is best removed by the snare or guillotine.

The polyp that presents a roughening or cauliflower-like projection at its apex should be destroyed by monopolar diathermy. The non-pedunculated polyp should be sparked by the bipolar method thus assuring deeper penetration beyond the base. This is particularly true of those nodular polyps that so frequently develop in cases of ulcerative colitis. One of our patients made a good recovery from a severe, long-continued ulcerative colitis, leaving in its wake twelve nodules from pea to hazelnut size in the ampulla recti. Bipolar electrocoagulation removed them completely leaving little scar tissue.

A physician, aged 73, had polyposis beginning just above the internal sphincter and extending up into the pelvic colon ten inches from the anus. Twelve large polyps were destroyed by bipolar diathermy. Four of them showed evidence of carcinomatous degeneration. Biopsy revealed adenocarcinoma. There has been no recurrence of the growths three and one-half years after removal.

A lawyer, aged 47, had an adenocarcinoma of the rectosigmoid junction resected at the Mayo Clinic by Dr. E. Starr Judd in October, 1925. In January, 1926, a bunch of small hard nodular polyps formed at the suture line. They were destroyed by diathermy without recurrence.

#### PAPILLOMATA

The true papillomata of the rectum rarely if ever develop into carcinoma. They grow rapidly and frequently fill the ampulla. They melt away quickly under the diathermy spark. Care must be exercised in the beginning of treatment. One of our patients, aged 67, suffering from papilloma and severe secondary anemia, succumbed soon after the first sparking. A reaction had followed ushered in by chill and fever. One should begin very gradually and spark but a small area; later the patient develops a tolerance and larger areas may be attacked. These growths exhibit a strong tendency to recur and the patient must be kept under observation for months afterward. One patient required a full year of treatment for recurrences but has been perfectly clear for over two years.

#### CARCINOMA

Adenocarcinoma is by far the most frequent growth encountered in the rectum and pelvic colon. It usually begins in the mucosa and projects into the lumen of the gut. Eight such growths have been destroyed by diathermy

without recurrence in the past three years. A diabetic woman, aged 52, presented a hard nodular mass the size of an almond three inches from the anal margin. She absolutely refused surgery and diathermy was employed. Just before sparking a fragment was removed and section revealed adenocarcinoma. Four months later a polypoid recurrence was found in the scar and sparked. Patient was examined again recently (three years after diathermy treatment) and a smooth small depression marked the site of the growth. Diathermy is far preferable to surgery in this early type of cancer. In later growths that have involved the wall of the bowel surgery is decidedly indicated. We have treated this type in patients in whom a Kraske operation was contraindicated because of debility incident to old age and organic disease. In one such patient the growth was far advanced, the size of a large lemon, attached by a broad base to the sacral promontory. It was finally destroyed by repeated sparkings. A rough scar tissue formed which was coagulated as deeply as possible. Ultimately a small depressed scar was secured which is located well beyond the wall of the bowel. Recurrence and metastasis may of course occur, but this patient has made a good recovery from his anemia, regained his weight and is in good general condition.

The annular type of growth should not be attacked by diathermy. If inoperable a colostomy is preferable.

#### TUBERCULOUS ULCER

Simple ulcers heal very quickly after treatment by monopolar diathermy. The tuberculous ulcer involving the anal canal responds well to the bipolar method. Considerable painful reaction may follow and the patient should be kept in bed. A patient, aged 65, presented three large tuberculous ulcers five inches from the anal canal. One ulcer was about one inch in diameter and was much indurated, producing a partial stenosis of the gut. They required a series of treatments but ultimately healed completely with restoration of the lumen of the bowel.

#### CONCLUSIONS

Diathermy is the treatment of choice in precancerous polyps, early cancer that projects into the lumen of the gut, and in simple and tuberculous ulcers of the rectum and pelvic colon. In later inoperable cancer the visible growth may be destroyed and bleeding checked.

3701 Westminster Place.

N. B. My thanks are due to Drs. L. D. Cady and Oliver Abel, Jr., for valuable assistance in this work.

## CHOREA GRAVIDARUM

### REPORT OF TWO CASES WITH REVIEW OF LITERATURE

RALPH BERG, M.D.

ST. LOUIS

A pregnant woman who develops symptoms of chorea presents a serious obstetrical problem. Because of its infrequency, we can best obtain a working knowledge of chorea gravidarum by a study of the apparent etiology, symptoms, treatment and mode of termination of recorded cases. It is with this thought in mind that the writer reports his case and briefly summarizes the literature. In addition, the occurrence in the same patient of an operable type of puerperal infection is worth noting.

#### INCIDENCE

The frequency of chorea gravidarum in regard to the actual number of cases, age, parity, stage of pregnancy, and to chorea in general, may be judged from the following: French and Hicks<sup>1</sup> collected twenty-nine cases during a thirty year period at Guy's Hospital; Jakoby<sup>2</sup> reported four cases out of approximately five thousand deliveries in and about Palestine between the years 1918 and 1925; Williams<sup>3</sup> states in his textbook that he has had only one severe case in his experience; at the St. Louis City Hospital where the writer's case occurred there is recorded only one other during the past fifteen years, an incidence of two in approximately twelve thousand deliveries.

By far the greater number of cases occur between the ages of 20 and 25 years and, perhaps partly because of this age incidence, primiparae are more often affected than multiparae. Shiell<sup>4</sup> reports 60 per cent and Buist<sup>5</sup> 59 per cent as occurring in primiparae. As regards the stage of pregnancy, the oft-quoted figures of Buist are interesting, viz., out of 203 cases 108 had their onset during the first three months, 70 during the second three months, 25 during the last trimester and 16 cases postpartum. Mühlbaum<sup>6</sup> noted that among sixty-five females with chorea, ranging in age from 16 to 30 years, 27 per cent had chorea gravidarum. The disease may recur in future pregnancies, thus in a remarkable case described by French and Hicks, the condition was present in the first pregnancy, absent in the second, third and fourth, but again made its appearance during the fifth pregnancy. These authors report four recurrences in twenty-nine cases.



## ETIOLOGY

When we come to the question of etiology one of the most interesting chapters in the literature of the disease is encountered. In a considerable number of the cases there is a rheumatic background upon which such a factor as sudden shock, fright or fear is superimposed. At times the condition is further enhanced by an unknown "toxin" peculiar to the pregnant state. We need not look far to note the high incidence of rheumatism or chorea in the past histories of the reported cases. In the twenty-nine cases of French and Hicks "nineteen had had chorea or rheumatism previously and of these, fifteen had chorea before marriage." Of the thirty-seven cases reported by Wall and Andrews,<sup>7</sup> sixteen gave a history of rheumatism and twenty-three had previously suffered with chorea. Bonhoeffer<sup>8</sup> states that over half of his cases are recurrences. After citing the above figures of Wall and Andrews, Duckworth<sup>9</sup> remarks: "I cannot believe, however, that these proportions represent the true relationship of the two conditions, but merely the occurrence of the more severe and recognizable forms of rheumatism of which the ordinary patients retain the remembrance. . . . Small wonder then that a history of rheumatism is so seldom forthcoming in adults who know nothing of their youth, and who subsequently develop chorea and present signs of old endocarditis." It is difficult to estimate how many of the patients had frequent sore throat in childhood but do not think their "growing pains" worth noting.

Postmortem findings tend to substantiate the rheumatic theory of causation. In the three fatal cases reported by French and Hicks recent endocarditis was noted in all of them and in one an old mitral stenosis with more recent fungating endocarditis was present. Several of the fatal cases of Barnes<sup>10</sup> showed "bead-like" deposits on the aortic and mitral valves. In three out of four fatal cases Wall and Andrews found an endocarditis with emboli in the spleen and kidney and once in the middle cerebral artery. Fraipont (quoted from Campbell)<sup>11</sup> reported valvular lesions in 66 per cent of 50 autopsies. The demonstration by Poynton and Holmes<sup>12,13</sup> of the *Diplococcus rheumaticus* in the nervous system and valves of the heart of a fatal case of chorea gravidarum is a strong argument in favor of its infectious nature in at least some cases.

Not all cases show an endocarditis at autopsy. Pinard<sup>14</sup> reported a very marked case of "psychose chœrique" which ended fatally but at postmortem showed nothing more than a cerebral hyperemia and a small but

otherwise nonpathologic heart. The microscopic lesions in the brain are not described. This brings up an important point which has only in recent years been emphasized, namely, the presence of minute lesions in the nervous system. Such lesions have been described by Creutzfeldt,<sup>15</sup> Jakob<sup>16,17</sup> and others. Lehoczy-Semmelweis<sup>18</sup> in 1926 reported the postmortem findings of a case of chorea gravidarum with initial symptoms, appearing in the fourth month of pregnancy, of fever and joint swelling. The patient was aborted at eight months but without avail. Grossly, hyperemic areas in the basal ganglia were noted together with parenchymatous degeneration of the heart, kidney and liver. Microscopically, a perivascular infiltration of lymphocytes and plasma cells was found in the corpus striatum, thalamus and substantia nigra. There was a loss of nerve cells with an increase in glia tissue in the putamen and pallidum. The lesions described by the other investigators are of a similar nature and are not unlike the findings<sup>19</sup> in some cases of Sydenham's chorea, thus strengthening the belief in a common infectious agency.

## PREDISPOSING CAUSES

Having thus far considered the probable underlying factor and its pathology let us now turn our attention to the predisposing causes. Barnes<sup>20</sup> long ago remarked: "The quick sequence of chorea gravidarum upon sudden terror has been observed too frequently to be put aside as accidental." In speaking of terror we immediately think of an external factor. But even the thought of pregnancy, with its entailing future responsibilities, is not a small shock to some women. How often do they suppress such a thought by trying to persuade themselves that a missed period or two means nothing, yet how glaringly does the fact make itself known by the first fetal movements (the time when chorea very frequently begins). The fear of a difficult labor has at times acted as an apparent cause. Whitmore<sup>21</sup> has considered certain cases as pure neuroses, believing that the heightened emotionalism of pregnancy, coupled with fatigue, may so act on a neurotically predisposed individual as to cause chorea. Would it be amiss to consider the various psychic traumata as producing in the nervous system a *locus minoris resistentiae* (as we look upon physical trauma in the production of an osteomyelitis), or shall we think of them as merely aggravating an already existing but overlooked condition? This question cannot be definitely answered, but the numerous examples throughout the literature of the apparent significance of psychic factors should

serve to emphasize their importance from a prenatal prophylactic standpoint.

In certain cases it seems necessary to postulate the presence of an unknown circulating toxin peculiar to the pregnant state which aggravates the chorea. Reference is here made to the patient who apparently does not have an endocarditis but whose condition grows progressively worse despite adequate conservative treatment. After induction of labor, delivery by cesarean section, or spontaneous expulsion of the fetus, recovery often ensues. The infrequent but not negligible occurrence of chorea gravidarum in the puerperium lends weight to the theory of toxemia, especially if the chorea does not recur in the presence of a severe sepsis, as in the writer's case. There are recorded, however, at least two cases of an exactly opposite nature, namely, the development of chorea synchronously with a postpartum sepsis. Shaw's<sup>22</sup> patient was relieved after removing placental remnants and washing out the uterus. Bossi<sup>23</sup> cites a case which has several points of interest. His patient was well until the seventh month of pregnancy at which time she became weak, tired and melancholic. She then miscarried and, in addition to the above symptoms, memory defects made themselves evident. These mental changes, as will be noted later, are frequent prodromata of chorea gravidarum. A month later the patient developed fever, a diffuse arthralgia and a septic endometritis. Then followed chorea which was so greatly relieved by curettage that in four days the patient was able to feed herself alone.

#### SYMPTOMATOLOGY

Turning now from the etiology to the symptomatology of the disease, it will be convenient to consider, as Mühlbaum<sup>24</sup> has done, the symptoms and prognosis together, for a close relationship exists between them. In a typical mild case the patient will usually first notice slight clumsiness and awkwardness in her movements, inability to comb her hair properly, etc. Mental changes, such as sullenness, irritability, melancholia, headache, dizziness, are not infrequent prodromata. The choreic movements which follow may begin in the hands or affect one entire half of the body and at times remain localized to certain muscle groups. Usually the entire body is later affected. Movements cease during sleep. Temperature and pulse remain normal. Such milder forms seem to be noted most often in primiparae who have had chorea in childhood and accordingly offer a good prognosis, the movements disappearing during the pregnancy or after full term delivery. Symptoms of on-

set late in pregnancy point to a good prognosis.

Entirely different is the more severe form, which often begins suddenly, without prodromata, after a fright or shock. The patients are extremely restless and their movements quite wild. Feeding becomes difficult and loss of sleep is a bothersome complication so that the general nutrition suffers early in the disease. Superficial skin infections, caused by constant rubbing on the bedclothes, rapidly progress to boils and phlegmons. Hallucinations, delusions, delirium and acute maniacal symptoms enter to complete the picture of a "chorea insaniens." Such patients have a fast pulse and an elevation of temperature. French and Hicks have stressed the gravity of cases with a temperature above 99°. Death may occur in less than a week but recovery is not unknown. The French writers have pointed out the presence of a morbilliform skin eruption as being of bad prognostic significance. Not only is the prognosis in these cases extremely grave if left to themselves, but induction of labor after the development of the above symptoms is all too often without avail. It is the opinion of Mühlbaum that the more severe forms are noted most often in choreas which recur in succeeding pregnancies. He cites a case which terminated fatally in her third pregnancy after having had the disease in each of two previous pregnancies. (This case showed a fresh endocarditis at autopsy.)

The reported mortality varies between wide limits, averaging 20 to 25 per cent. Shaw<sup>25</sup> reported 32 cases with no maternal death. Barnes<sup>26</sup> noted a mortality of 43 per cent in his series, but even higher figures are quoted. Throughout the literature one fact has been repeatedly emphasized,—the prognosis should always be guarded because cases which at the onset seem mild may become progressively worse and develop cardiac, psychic and other complications that often prove fatal. As to the later welfare of those women who do recover, it may be said that most of them remain permanently well. Some, as has been noted above, develop chorea in future pregnancies and then in rare instances it has remained permanent.

The fetal mortality is about twice that of the maternal due to the fact that spontaneous abortions and miscarriages are not uncommon. In 57 cases reported by Barnes there were ten abortions and nine miscarriages. In several instances the fetus has been affected with chorea, as noted in the following graphic description by Barnes: "At birth the child, a girl, displayed the writhing motions of chorea and continued to suffer through life. When about thirty she had the appearance of an



elderly child with a head remarkably small and a mind hardly removed from idiocy." Turning from such a sombre picture we are glad to note that Pinard reported eight pregnancies with eight healthy children.

#### TREATMENT

As regards treatment, three fundamentally important points stand out:

1. For practical purposes chorea gravidarum should be considered as part of the rheumatic syndrome just as Sydenham's chorea is so considered in childhood, with the additional element at times of a toxemia peculiar to pregnancy. Such a conception although not theoretically correct in all cases will not only make us firmly insist upon absolute bed rest but will make us realize that only too often a smoldering cardiac lesion may flare up at any time to consume our patient.

2. Most cases will get well on conservative treatment, as Shaw, above all others, has strongly emphasized.

3. Those patients who do not respond readily to conservative treatment or whose symptoms have begun abruptly with severe mental disturbance and marked motor restlessness should be promptly aborted, especially if the pulse rate persists above 100. Upon this point most observers have agreed.<sup>27,28,29,30,31</sup> If one waits until the general nutrition has suffered through lack of food and rest, or until elevation of temperature and cardiac signs have set in, the patient will, in all probability, die in spite of termination of pregnancy.

Bed rest, quiet surroundings sedatives and proper elimination have been shown to give most excellent results in mild cases. In patients near term who have not responded to conservative treatment cesarean section has proven to be a valuable means of delivery.<sup>32</sup>

One of the reported forms of treatment cannot fail to make a striking impression upon us, namely, that recommended by Albrecht.<sup>33</sup> This observer believing that chorea gravidarum was a toxemia gave his patient an intramuscular injection of 20 cc. of the serum of a normally pregnant woman and in twenty-four hours she was cured. Sichel<sup>34</sup> has reported a similar case but with a slightly less spectacular result. His patient, a severe choreic in her sixth month of pregnancy, showed marked improvement after four successive intravenous injections of 15 cc. of blood serum of a normally pregnant woman. After a period of two weeks she was again given 20 cc. of blood serum on four successive days and again with marked clinical improvement. His patient went to term and delivered normally. As will be noted below the case here reported received

one such treatment, but without startling results.

Finally, the reported experience of Flamma<sup>35</sup> is of etiologic as well as therapeutic interest. A woman who had been aborted in her first pregnancy because of chorea which steadily grew worse, became pregnant a second time. During the second pregnancy her choreic movement was so severe that she asked to have an abortion done. Accordingly a "sham abortion under chloroform was resorted to after which the chorea disappeared." The patient delivered at full term.

#### REPORT OF CASE\*

Case 1. Mrs. M. P., a primipara aged 19, in her eighth month of pregnancy, was admitted to the City Hospital on May 20, 1929. Her chief complaints were (1) inability to walk, due to involuntary jerking of her right leg, which began five weeks prior to entrance, (2) pain in left leg, (3) twitching in left arm with partial loss of function.

Her past history was negative except for an attack of what was apparently thrush in childhood.

Physical examination revealed a well developed young woman with severe generalized choreiform movements. Her lips were parched and cracked. Oral inspection revealed three carious teeth. Her tonsils showed no signs of inflammation. Examination of the heart, pulse rate 80, revealed neither murmur nor enlargement. Abdominal palpation showed the uterus to be enlarged to the size of an eight month's pregnancy. The fetus was in right cephalic position and its heart beat was of good quality. The patient's temperature was normal and remained so during her period of observation. A diagnosis of chorea gravidarum was made.

*Treatment.*—Rest in bed, sedatives, salicylates, Fowler's solution and one injection of 20 cc. of the serum of a normal pregnant woman. The patient showed a gradually progressive improvement and was delivered spontaneously of a normal well developed infant, weighing 2850 gms., on July 24, 1929, two months after admission and slightly more than three months after the onset of symptoms. A superficial perineal laceration was repaired with catgut. On her fourth postpartum day she developed a transient temperature of 101 which in a few hours dropped to normal and remained so during the remainder of her stay in the hospital. Contrary to medical advice, she was taken home on August 3, ten days after delivery. At that time there were still present very slight choreiform movements.

The patient returned to the hospital on August 18 profoundly toxic, complaining of severe cramps in her lower abdomen and giving a history of chills and fever, which began on August 11 (eighteen days postpartum). The chills would occur daily, the temperature rising to 104. She stated that her lochia had a foul odor. Physical examination on second admission showed a considerable loss in weight since discharge from hospital. The throat was reddened, the tonsils enlarged and protruding. On listening over the mitral area a faint systolic blow was audible. Abdominal examination showed a large mass in the lower abdomen extending from a point two finger's breadth below the umbilicus to the symphysis. Vaginal examination revealed a

\* From the service of Drs. Ayars and Marquardt.

soft regular mass in the midline with the above mentioned upper limit, this mass was taken to be the uterus. Because of the patient's poor condition, together with severe abdominal pain, a thorough pelvic examination was impossible. Believing the condition might be due to absorption of toxins from necrotic material in the uterus, a hot intra-uterine douche of 1-5000 potassium permanganate, followed by 80 per cent alcohol, was given on the day following admission. The next day another chill occurred with the temperature rising to 102. Under hyoscine and morphine analgesia, the uterus was lightly curetted removing a large number of foul smelling blood clots. This was followed by a douche as of previous date. Microscopic examination of the material obtained from the uterus revealed nothing more than a clot infiltrated with polymorphonuclear leukocytes, without evidence of placental tissue. Unfortunately, a culture of this material was not made.

The patient's temperature still persisted, ranging from 101 to 104. On August 22 (four days after second admission) a transfusion of 540 cc. of whole blood was given. On the next day her temperature still being up to 104, another transfusion of 500 cc. of whole blood was given. At this time abdominal examination revealed a large mass, tender and moderately firm in consistency, more distinctly outlined than the above and extending up to the umbilicus and toward the right side. Vaginal examination revealed the tense lower border of this mass high up in the right adnexal region and apparently separate from the uterus. It was agreed that the mass was far too high in the pelvis for safe vaginal exploration. Because of this fact, together with the lack of improvement in the patient's condition, a laparotomy was decided upon and performed on the afternoon of August 23. Under spinal anesthesia (spinothane) a midline lower abdominal incision was made; a moderate amount of clear yellow fluid was found in the peritoneal cavity. A large right ovarian cyst, size of a grapefruit, presented itself with the elongated tube stretched over it. It was freely moveable, with no adhesions to surrounding organs. The uterus was well involuted, the left adnexa and the appendix were normal. The cyst, together with the overlying tube, was removed and the abdomen closed with drains to right and left flanks, and one to the culdesac of Douglas. On opening the cyst after the operation 1000 cc. of greenish-yellow pus escaped, revealing a lining composed of a purulent membranous exudate. Culture of the pus yielded a streptococcus.

Microscopic examination of the tube showed a slight infiltration of the deeper muscular layers with polymorphonuclear leukocytes. There were no leukocytes in the villi, whose epithelium was intact. A section of the cyst wall showed the inner lining to be a layer of granulation tissue composed of many newly formed blood vessels and, strangely enough, a predominance of small round cells rather than polymorphs in the cellular exudate. Deeper in the wall, older fibroblasts were seen. In places strips of low cuboidal epithelium showed the nature of the original cyst lining. No evidence of endometriosis could be found in the cyst wall.

The patient's early postoperative course was stormy, her temperature rising to 106 on the evening of her first postoperative day. On her second postoperative day, 80 cc. of polyvalent antistreptococcal serum was administered intramuscularly; a dose of 70 cc. was given on the third day. Mean-

while, subcutaneous injections of streptococcus immunogen were begun, the initial dose being one-half cc. and increasing up to two and one-half cc. daily: twelve such injections in all were given. Patient was again transfused on her third postoperative day (560 cc. of whole blood). Beginning with her fifth postoperative day, a gradual improvement was noted. The patient was discharged on September 7 (fifteen days postoperative) with the wound completely healed. At the time of discharge only the faintest choreiform movements could still be seen on most careful scrutiny. A faint inconstant systolic murmur was still audible at the apex.

The patient left the city but through information obtained from relatives one month after discharge we have learned that she is in good health and is gaining weight.

Case 2. A second case taken from the hospital records of 1927, was that of a young woman aged 21, para 2, who entered the hospital on March 24, 1927, complaining of abdominal pain. From the size of her abdomen the pregnancy was estimated to be of thirty two weeks' duration. Her temperature was normal, pulse 108. Involuntary twitching movements of the face and eyelids together with athetoid movements of the hands, were noted. The patient gave a history of typhoid in childhood and of chorea at 16. The chorea recurred during her first pregnancy and disappeared shortly after the birth of the baby, only to recur during the present pregnancy. Date of onset of symptoms very indefinite.

The mother and one nephew had suffered with chorea.

Treatment consisted of nothing more than rest in bed. On April 3 the patient was delivered spontaneously of a full term normal infant weighing 3420 gms. She was discharged on her tenth postpartum day with the chorea markedly improved.

#### COMMENT

1. In the treatment of chorea gravidarum conservatism is the method of choice in about two thirds of the cases. In the remaining third, according to Bumm, such therapy will fail. There are certain fairly definite signs and modes of onset which are ominous of a stormy course, warning us of the necessity of prompt termination of pregnancy.

2. Likewise, in the treatment of puerperal sepsis conservatism has been sponsored by most authorities, at least until such time as localization of the infection becomes evident. The suppurating ovarian cyst, occurring in the third week of the puerperium, serves to remind us, however, that localization may take place early and it is then that prompt operative interference seems justifiable.

Infection of the cyst contents probably took place via the lymphatics from the uterus, the infected endometrium being a frequent precursor of such a complication in ovarian tumors. In Wiener's<sup>36</sup> analysis of 240 cases of ovarian tumors, suppuration was noted six times and all but one of these patients had passed through labor or an abortion.



3. The fact that the chorea did not recur during the puerperium despite the debilitating influence of the sepsis makes it probable that in this case a toxemia associated with the presence of the fetus played its part in the development of the chorea during pregnancy.

4. Finally, the value of spinal anesthesia in operating upon an already toxic patient cannot be too strongly emphasized.

City Hospital.

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## SYMPOSIUM ON NASAL SINUS DISEASE

### RECENT ADVANCES IN LARYNGOLOGY\*

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It is impossible to cover all the recent advances in the etiology and treatment of laryngological conditions, nevertheless, certain matters more or less new are assuming great importance in this field, and are influencing our methods by decreasing the indications for operative procedure. We are to be congratulated that laryngologists today are not strictly specialists, but are internists with laryngological tendencies. Certainly a knowledge of internal medicine is the foundation of our work.

Those who are especially interested in internal medicine get more useful information from the field of laryngology than from that of any of the other so-called specialties. Sixty per cent of all human ills are located above the diaphragm.

A condition that we hear much about today is the allergic nose. A knowledge of allergy by the laryngologist has saved many patients from operation and has been responsible for excellent results when operation was indicated.

Piness and Miller report that out of 834 allergic patients 413, or 49 per cent, had nasal operations without benefit. The 413 patients had undergone 704 operations, one patient being operated on 18 times. Lintz reports 300 allergic patients, 56 of whom, or 18.7 per cent, had operations on the nose or throat.

Perhaps all of these operations were justified; I do not know. I do know, however, that I have seen many cases of sinus disease in children and adults where operations have been strongly advised and yet a perfect result has been secured by the exclusion of an allergen from the diet, or by preventing contact with the exciting substance.

Contact with the allergen produces acute sinusitis. One must constantly be on the watch for this allergic state. An infinitesimal amount of the allergen may produce a reaction. In the cocoon of the silkworm is a protein substance of no value in silk cloth. Every effort is made by washing to get rid of this substance in the cloth. Nevertheless, persons sensitive to this allergen will give a reaction in the presence of silk.

Allergens in the diet we know cause reactions. An allergen in the diet in order to

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affect the nasal mucosa must do so through the circulation. I do not know if proteoses and peptones are absorbed from the intestinal tract. If not, some of the unstable complex substances which are formed during the hydrolysis of the proteins and their conversion into amines must be absorbed if we are to have an allergic reaction. Operations on the nose and throat of these patients often benefit them temporarily; why I do not know. Succeeding operations are less beneficial and eventually the patient is not improved.

There is no objection to operating on an allergic patient if the patient has been carefully studied and if the indications for the operation are definite. As to whether there is such a thing as bacterial allergy, I do not know. Allergic patients however are at times relieved by the control of a chronic suppurative sinusitis or by the removal of nasal polyps, or by both. The point that I wish to emphasize is the need of knowing the allergic state of your patient before operating. Pus and fever in an allergic patient suggest something besides allergy. The allergic edema interferes with ciliary action in the sinuses which predisposes to stagnation and infection.

The allergic nose becomes very sensitive to drafts, weather changes, etc. It does often resemble infection. The woman who picks her ducks on rainy days because the weather is not fit to work out of doors may have an allergic reaction and not an infection.

In every case of sinus disease we must think not only of the possibility of an allergic state, but of nutritional disorders. Deficient diet plays a most important role in the production of sinus disease. The work of Daniels and Shurly is revolutionizing our conception of what sinus disease is. It is more important to know what prepares the tissues for infection than to know the infecting organism. If it were not for allergic states, nutritional disturbances and endocrine disorders we would not have many cases of sinus disease. The control rat in the same cage and exposed to the same organism as the rat on a deficient diet does not develop sinus disease. Dr. Daniels showed that every white rat on a diet deficient in vitamin A developed sinus suppuration.

In speaking of the pathology of sinus infection we often mention hyperplasia of the epithelial cells and metaplasia of the cells. Wolbach of Harvard and Smith of Yale have shown that, with a diet deficient in vitamin A we get hyperplasia of the epithelial cells and a metaplasia of these cells in different parts of the body, i. e., at the base of the tongue, in the submaxillary glands, in the pelvis of the kidney, and what is to me of greatest significance these changes precede the infection. There is

room, however, for an enormous amount of work before our conception of the etiology of sinus disease is complete. I think today we can demonstrate nutritional disturbances in the cells of the sinuses of animals fed on deficient diets. These changes antedate the hyperplasia.

To me a deficient diet does not cause infection of the sinuses; it produces changes in the epithelial layer of the sinus membrane which perhaps lead to stagnation in the sinuses and consequent infection.

The ease with which infections invade the mucous membrane is dependent upon one or more of the predisposing factors. In the absence of allergy it is evident that not only does a perfectly healthy robust child resist infection better than a poorly nourished child, but infection, when present, does not have the same clinical significance in the two types of child. In the robust child it may be of little importance and can be easily eradicated, while in the poorly nourished child it may exert a deleterious influence and be difficult to cure.

The importance of deficient diet in the production of chronic nasal sinus disease cannot be overestimated. Diet must be considered in every case of sinus disease. Many so-called nasal headaches are relieved by an increase of the vitamin A in the diet.

The first thing to be kept in mind in connection with the treatment of chronic nasal sinus infection in children is that, if the best result is to be secured, the proper laryngologic treatment must accompany the dietary. Only in incipient nasal infection may the desired result be secured by dietetic and hygienic treatment alone.

Dr. Daniels demonstrated that in the early stages of sinus infection in the rat, produced by a deficient diet, the sinusitis could be corrected by a suitable diet; but that, when once established, diet would not bring about a cure. This confirmed the observations just mentioned.

Following this observation we established a normal infants' ward to study the growing infant. Dr. Daniels was placed in charge. New-born infants were placed in the ward and remained there until they were two years old. We must remember that not only did these infants receive a proper diet as far as vitamins were concerned, but the inorganic substances were properly balanced. There were ideal hygienic surroundings; there was a minimum opportunity for infection. During the two years neither a laryngologist nor an otologist was summoned to the ward. Incipient nasal infections were controlled.

When these children left at the age of two years they were kept under supervision in their adopted homes. Only one developed a mastoid. In this case it was found that the mother de-



sired to do things just right so she mixed the baby's milk with cod liver oil, allowed it to stand, and then skimmed off the surface content. Removing the fat resulted in a mastoid.

At the age of seven none of these children have a carious tooth.

While the influence of allergy and diet in nasal infections is well understood, the influence of endocrine disorders lacks the definiteness of the others. Their influence is just as important, as is evidenced by the comparatively few cases where remarkable results are secured by endocrine therapy alone. The observations of Carmody and Wasson on sinus infections in children are most interesting. They showed that the only evidence of early sinusitis may be ciliary dysfunction. When there is infiltration of membrane or bone involvement the sinus membrane will not return to normal. How important is it then that we get these cases early and eradicate the cause? They stressed the influence of out-of-door life and general treatment on the condition. They found that as children became old enough to play out-of-doors the sinus infection improved. They found it difficult to get in any child a series of X-ray plates from infancy to eight years of age that did not show at times diseased sinuses. This is most important.

Frequently the cause of nasal sinusitis may be in the throat or in the nose outside of the sinuses. In such cases especially do we get sinus disease in infections of the upper respiratory tract.

We no longer look at a patient as one who must have his sinuses operated on; rather we are devoting all our efforts to remove the cause and produce a more desirable result.

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## CONDITIONS IN THE NOSE, THROAT AND MOUTH AND INFECTIONS IN THE UPPER RESPIRATORY TRACT AS ETIOLOGICAL FAC- TORS IN NASAL SINUS DISEASE \*

I. D. KELLEY, JR., M.D.

ST. LOUIS

The fundamental cause of nasal sinusitis is faulty aeration and drainage. Therefore, to understand clearly the causes which affect this mechanism we must familiarize ourselves with the topography of the nose in its relation to the sinus ostei. It is here that the trouble, as far as the patient is concerned, begins and ends. Here the monkey wrench is thrown into the

ventilating and drainage machinery of the sinuses. In this, "the sinus age," rhinologically speaking, the specialist in his enthusiasm too often concentrates his entire attention on the diseased sinus alone and forgets the importance of its approach. He feels that the condition found within the sinus is actually the key to the cause, treatment and cure of the disease. Sight is lost entirely of the fact that a sinus opening into a normal nose must be a normal sinus. Even should it become infected by inflammation from neighboring parts, from remote infection carried into it by way of the blood and lymph or from contamination by pus from the nose or overlying sinuses, it must quickly return to normal if conditions in the nose permit proper ventilation and drainage through its osteum. This fact holds true even with the two sinuses which have their osti high upon their walls, the very large maxillary antrum and the smaller sphenoid sinus, which drain practically entirely by siphonage and posture. It is too often forgotten that nature intended all sinuses to be normal by providing their lining membrane with cilia to evacuate untoward material from their depths, by arming them with bactericidal glandular secretion to fight infection and by protecting their ostei with the complex structures of the nose. The nasal sinuses might be likened to calm, empty sterile chambers opening to the outside world through an intricate, guarded corridor bristling with movement and life. Like a good mechanic the rhinologist must turn to this busy passage (the nose) for many of the etiological troubles causing sinus infection. To show the mechanical factors producing blocked drainage and aeration, Fig. 1 pictures the side wall of the nose with the turbinal bodies intact covering and protecting the ostei of both the anterior and posterior sinus groups. Fig. 2 is the same view, but has the anterior half of the middle turbinate removed showing the semilunar line with the frontal sinus osteum through the infundibulum opening into it anteriorly and the maxillary osteum posteriorly. In front of the linea semilunaris is the uncinat process, while above and centered on the semilunar line is the bulla ethmoidalis and the anterior ethmoid sinus ostei. Higher up above the middle turbinate and more posteriorly are the posterior ethmoid and sphenoid sinus openings. In this area along the semilunar line are found the ostei of the anterior sinus group. The ostei of the posterior ethmoid and sphenoid sinuses together comprise the openings of the posterior group. This then is the area directly concerned with sinus aeration and drainage. Mechanical interference here from whatever cause or source interferes with normal sinus function

\* Read before the St. Louis Medical Society, December 17, 1929, in a Symposium on Nasal Sinus Disease.

and sinusitis results. The next illustration is the key to these mechanical disturbances. In Fig. 3 are seen various forms of internasal sinus blocking. The upper left picture shows schematically a deflected septum pushing the middle turbinate outward to the lateral nasal wall, thus blocking middle meatal drainage. Upper right is an hypertrophied turbinate producing the same result by the encroachment upon the *linea semilunaris*. Lower left is seen a turgescent turbinate accomplishing the same result. Lower right, a bullous middle turbinate caused by a failure of the two ethmoid lamellae to coalesce and form a normal middle turbinate is blocking this so-called vicious sinus area. Fig. 4, upper left, shows a middle turbinate hugging the lateral wall blocking the sinus ostei. Upper right, the cell in the uncinate process is overdeveloped causing difficult aer-



Fig. 1



Fig. 2

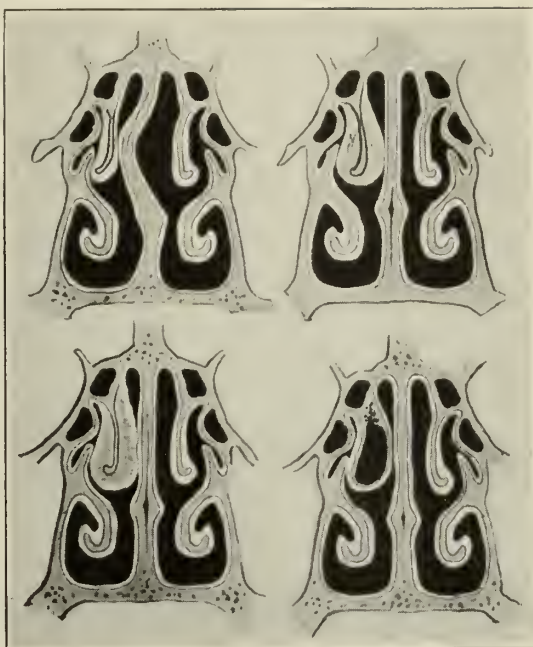


Fig. 3

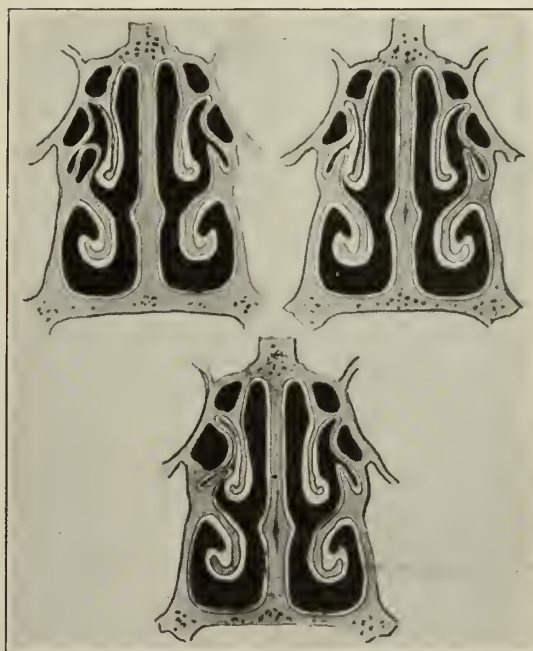


Fig. 4

ation and drainage, while in the lower picture is seen a maldevelopment of the bulla ethmoidalis filling the middle meatus.

We are now familiar with certain abnormal and pathological conditions affecting this so-called "vicious sinus area," each condition with-in itself capable of fulfilling the physiopathological law which governs predisposing causes



necessary to induce sinus trouble: "When drainage and ventilation to mucous membrane lined cavities is blocked or impaired, favorable conditions are created for the growth of pathogenic bacteria within them." Obstructions in the middle meatus are necessarily the most productive of sinus disease because of the direct effect on the drainage of both the anterior and posterior sinus groups. The air which we breathe through the nose exerts a force, manifested especially in the region of the sinus ostei, causing a slight rarefaction of air within the sinuses; this in turn facilitates the flow of secretion from these ostei. Obstructions even in the lower nose cause a turgescence of the erectile tissue, or "swell bodies," followed by a true hypertrophy which eventually reduces the resistance in the upper nasal chambers, and it is the extension of this inflammation upward which causes a definite interference with the mechanical force exerted on the sinuses by the inspired air.

Proceeding to the specific nasal etiological causes producing sinus infection, the first to consider because of its frequency should be the common head cold, or coryza. Potentially all the necessary power is found in this infection to produce the severest sinusitis. Its turgescence onset with profuse serous secretion soon blocks the nose; then, because of continuity of mucous membrane surfaces and extension of the inflammation, the sinuses soon become infected. Their drainage is now effectually blocked by mucopus filling the nasal shafts. The brunt of such nose infections is borne most often by the maxillary sinus because of its great size and siphon drainage. Finally, with reestablished aeration and drainage, the frontal and ethmoid sinuses quickly drain themselves, the sphenoid sinus to a lesser degree because of its high placed ostium, but the maxillary antrum, with unassisted drainage, may often persist as the sole cause of repeated reinfection. At this point I must stress the importance of properly freeing the infected nose of mucopus. A large percentage of sinus trouble and much ear, nose and throat disease would be avoided if all children at the earliest possible age were taught how to clear their noses properly by blowing and hawking backward, thus establishing nasal ventilation and ridding the nose of accumulated, infected and irritating mucopus.

Chronic hyperplastic inflammations, the end-result of repeated colds, will inevitably lead to sinusitis, and I know of no surer way to hasten its course than to become an addict to the nasal douche habit. I have always felt that douches should be used only to free a nose blocked with thick mucopus and crusts when all other means

at hand fail to clear it, or when a speedy and complete removal of virulent and rapidly forming pus and toxins is demanded. Nasal mucous membranes do not tolerate water well, and habitual douching inevitably leads to nasal irritation, and not infrequently to acute and chronic sinusitis.

Congenital and acquired deflections of the nasal septum, like bullous turbinates, malformations of the bulla ethmoidalis and the uncinate process, etc., are, as we have seen, decided etiological factors in sinus disease. When these malformations block middle meatal drainage, proper surgical corrective measures must be resorted to. One of the greatest factors in producing a susceptibility to head colds in the experience of rhinologists are deflections of the nasal septum, which narrow the nasal shafts and prevent aeration and drainage in and about the middle meatus. In selected cases a well executed resection often will prove the panacea for all nose and throat ills.

Because of the location of the posterior ethmoid and sphenoidal sinuses with their drainage along the ethmosphenoidal fissure into the postnasal vault, obstructions in this space must not be overlooked. Enlarged adenoids, hypertrophied plicae septii and malformations obstructing the posterior nares will block the drainage of these sinuses.

Mouth and throat infections cannot be too greatly stressed in sinusitis. I make it an inflexible rule that all cases of sinusitis must have appropriate treatment given tooth abscesses, pyorrhea alveolaris and caries of the teeth. Pus foci in the alveolar process by direct rupture or extension by continuity are responsible, certain authors state, for at least 25 per cent of maxillary antrum infections. Diseased tonsils are also a menace, not only because of constant reinfection of the mucous membrane, but because of pathogenic invasion of the sinuses directly through the blood and lymph streams. Excessive high arching of the hard palate causes nasal blocking because the arching is gained entirely at the expense of the nasal cavity in its perpendicular dimension. This in turn encroaches upon the normal development of the nasal septum, which then becomes thickened and irregular, finally flattening the middle turbinates against the lateral nasal wall blocking the sinus ostei. I have seen a child who had been operated on four times for the removal of adenoids because of mouth breathing and adenoid facies and whose parents had been told before each operation that the nasal obstruction and facial deformity would return to normal after operation. At no time had the adenoid interfered with normal

respiration and development in this case. An unusually high arch of the palate was the only cause for the nasal blocking and facies.

Bacterial examination of the sinuses shows that the staphylococcus and streptococcus are the most common invading organisms and that mixed infections are usual; consequently, sinus diseases frequently accompany the acute exanthemata. During gripe and influenza epidemics the rhinologist is literally swamped with work caused by the highly virulent staphylococcus and streptococcus found to predominate in these acute infectious diseases, because they set the stage perfectly for infections of the sinuses.

Following downward the respiratory tract we come to tracheitis, bronchitis, bronchopneumonia and bronchiectasis in the etiology of sinusitis. In certain cases, because the primary pneumonia or bronchitis is remote from the sinus and the onset of the infection so far antedates the sinusitis, we must assume that infection occurred through the blood or lymph streams, or through allergy-producing toxins which have made the sinus mucosa susceptible to infection. It is an accepted fact that an infected sinus can be the cause of bronchitis. This is so widely known among medical men that all cases of chronic bronchitis and asthma are now investigated for possible sinus infection as the primary cause. Many doctors feel that by curing the sinus improvement in the secondary lung infection must follow. One does not hear, however, of primary lung pathology as the etiological factor in producing sinus infection. If lung infection occurs because bacteria or toxic allergy pass to it from the sinus, I see no reason why these same agents cannot pass primarily from the lung to the sinus. I have still to hear it said "First cure the lung and surgical sinus drainage will be unnecessary." No doubt the reason for this is that curing chronic lung pathology is still too far beyond medical skill.

Sinusitis, especially in the chronic stage, depends for its cure largely upon surgical correction and drainage of the nasal air passages and often upon surgery of the sinuses themselves. Nasal surgery will always be indicated where pus production persists. Therefore, I wish to plead for the employment of rationalism in our surgical problems rather than against radicalism. In ear, nose and throat work the term conservatism should not be employed because its use will only justify timidity and inefficiency. I feel a true conservatist is a rationalist who undertakes to do radical operative procedures when they are actually indicated.

## ALLERGY AS AN ETIOLOGIC FACTOR IN PARANASAL SINUS DISEASE \*

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On the basis of clinical and histopathologic studies it is now generally accepted that the vasomotor nasal symptoms and associated pathologic changes in the nose and sinuses, occurring in hay-fever, vasomotor or hyperesthetic rhinitis and bronchial asthma, may be considered as manifestations of allergy. There has always been a great deal of confusion in the interpretation of the nasal and sinus changes in these cases, consequently a large percentage of them has been considered and treated as infected sinuses.

The nasal manifestations of allergy are characterized symptomatically by sneezing, nasal obstruction and nasal discharge. In hay-fever these symptoms are frequently well marked and easily recognized. In nonseasonal types they are generally intermittent, vary considerably in degree, and are apt to be confused with "frequent colds" of infectious origin. Allergic nasal reactions vary in duration from several hours to several days but the attacks do not correspond to those of acute rhinitis in which there is a constitutional reaction to infection and a discharge of pus from the nose.

The nasal discharge in allergy varies from thin serous liquid to thick tenacious mucus and the microscopic examination usually shows the presence of eosinophils. In acute rhinitis the nasal secretions contain numerous polymorphonuclear leukocytes.

The examination of the nose in allergy reveals pathologic changes which are usually strikingly characteristic. The membrane appears discolored, grayish-pink or bluish-gray, with swelling or edema. Edema is particularly apparent in the middle meatus and anterior ethmoidal region. In cases with more advanced pathology, hyperplasia and polypoid formations may be observed. The nose may be filled with polypi, which are attached by pedicles usually in the anterior and posterior ethmoidal regions. These formations are the result of sagging or prolapse of the edematous mucosa. The examination of the sinuses particularly the ethmoidal cells and the maxillary antrums may show edema, hyperplasia and polypi as found in the nose.

The histopathologic examination of the nasal and sinus tissues shows pathologic changes similar to those found in the bronchial tissues in bronchial asthma. The surface epithelium is



thickened and consists of many layers of stratified columnar cells without the cilia which are normally present. The subepithelial tissues are loose and edematous and infiltrated with eosinophils which are frequently found in the tissues in allergy. Other cellular elements consist mostly of plasma cells and lymphocytes. Large tissue spaces contain serum which gives the edematous appearance. The glandular structures usually appear dilated and filled with secretion. Polyp formations result from sagging or prolapse of the edematous mucosa. The cellular reaction is much less pronounced than in true inflammation. Cell counts of edematous areas have shown the following percentages: Eosinophils 30 to 40 per cent, lymphocytes 35 to 45 per cent, plasma cells 20 to 30 per cent.

Roentgenographic examination of the paranasal sinuses in allergy frequently shows varying degrees of opacity, depending upon the degree of pathologic change present. Edema and polypi frequently may be shown by use of lipiodol injection. Transitory edema may give positive findings at one time and negative at another. By means of lipiodol injection Dean, Proetz and also Johnston have proved recently that this variation may occur.

In addition to the rhinologic observations, the diagnosis of nasal and sinus allergy is further established by (1) the occurrence of other allergic manifestations in the same patient; (2) a positive family history of allergy; (3) the presence of positive skin tests; (4) eosinophilia.

The pathologic condition of the nose and sinuses thus resulting from allergic disease prepares the soil for infection. The edematous mucosa with the loss of ciliary activity which, under normal conditions, keeps the sinuses free of secretions and bacteria, cause the retention of these products. Stagnation of secretions readily occurs and with attacks of acute infection a definite suppurative process becomes active and may eventually result in chronic infection.

The histopathologic examination of the nasal and sinus tissues in allergy with secondary infection shows a marked increase in the degree of cellular reaction. In the acute stage the polymorphonuclear leukocyte is most predominant with a relative increase in the number of round cells or lymphocytes. In the chronic process the round cells are more numerous while the number of leukocytes decreases. The proliferation of new connective tissue is also an outstanding feature. It is usually possible, however, to find areas in the tissues of the nose and sinuses where the picture of allergy remains with little alteration.

The classification of the inflammatory dis-

eases of the paranasal sinuses, as given by authoritative otolaryngologists, has been accepted for a long time. Three main groups or types are considered, viz.: (1) Suppurative sinusitis; (2) Nonsuppurative, hyperplastic or catarrhal sinusitis; (3) a combined type or suppurative-hyperplastic sinusitis.

According to this classification, no distinction is made between allergic and nonallergic sinus disease. It is apparent, however, that nonsuppurative, hyperplastic sinusitis is really allergic sinusitis. In the combined group, the suppurative-hyperplastic type, the allergic must be distinguished from the nonallergic. Suppurative-hyperplastic sinusitis may be either allergy with secondary infection or true primary suppurative sinusitis with secondary hyperplasia. Nasal polypi occur in both types. They occur more frequently and abundantly in allergy than in primary infection. We must recognize them therefore as occurring primarily in one instance as the result of allergy and in the other instance as the result of infection.

In primary sinus infection or suppuration there is a striking absence of vasomotor symptoms and upon examination of the nose the mucous membrane may appear inflamed and sometimes edematous. Polypi if present appear infected and more firm or compact than seen in allergy. When the nose is markedly obstructed with polypi in allergy the vasomotor nasal reactions may be absent or infrequent on account of the lack of nasal respiration. The history will usually disclose, however, the previous existence of these symptoms and other manifestations of allergy. In cases of doubtful diagnosis one should not hesitate to remove tissue for microscopic diagnosis.

The histopathologic examination of the tissues in primary infection of the sinuses shows in addition to hyperplasia of the surface epithelium a marked cellular infiltration of the subepithelial tissues consisting of polymorphonuclear leukocytes, round cells and plasma cells. In the acute cases or in acute exacerbations in chronic cases the polynuclears are more abundant while in the usual chronic state the round cell is predominant and connective tissue proliferation is very active.

On the basis of clinical and histopathologic observations it is apparent that the allergic sinus cases with or without secondary infection should be distinguished from the true infections or primary suppurative sinus cases. I believe that many of the disappointments in the treatment of sinus disease have been the result of the failure to make this distinction.

The local treatment of the allergic cases has proved to be only palliative. Operative surgery

on the nose and sinuses has been very disappointing as far as relieving the allergic manifestations is concerned. Experience has proved that treatment of the allergy frequently gives results where surgery fails. Operations on the nose and sinuses in bronchial asthma have likewise been disappointing in relieving the asthma.

It is generally agreed, however, that nasal and sinus surgery should be employed when it is necessary to restore nasal respiration or to establish drainage of the sinuses when it is indicated. Radium should be used following the removal of polypi to lessen recurrence, especially in those cases where it is difficult to control the allergy.

It must be emphasized, however, that the allergy is the fundamental etiologic factor and that satisfactory results are dependent upon its treatment and control. If the allergy can be controlled or possibly cured in early cases, advanced pathologic changes may be prevented and the possibility of secondary infection, consequently, should surely be less probable.

In conclusion, it should be emphasized that if we consider all sinus cases as being either allergic, with or without secondary infection, or as primarily infected or suppurative, we should profit by the distinction. By following the principles of treatment adaptable to each group we should be able to obtain far more satisfactory results than those obtained in the past.

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## SOME EXTERNAL INFLUENCES AS ETIOLOGICAL FACTORS IN NASAL SINUS DISEASE \*

ARTHUR W. PROETZ, M.D.

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The active and immediate agent in sinus disease responsible for the local and systemic disturbances with which we are all familiar is of course infection. Of paramount importance, however, in the program of prevention and treatment are those factors which permit the retention and growth of bacteria in the nose and its accessory cavities. The normal nasal mucosa is peculiarly fitted to resist the ravages of invading organisms, and it is only when these elemental hygienic conditions become vitiated that bacteria can flourish to the extent and for the duration required to produce sinus disease.

For the past few generations the by-products of civilization have proven especially disastrous to nasal physiology. Conditions in congested centers are especially trying, smoke and central heating being the chief offenders. Any

agency which brings about swelling, hyperplasia, or any other type of obstruction upsets the normal scheme of bacterial elimination. Smoke does this in several ways. The least of these is the irritation produced by the carbon particles which are effectively carried off by the nasal mucus and cilia. The most irritating components of smoke are sulphur dioxide and sulphur trioxide gases. Contact of these gases with the moist nasal mucosa and with the moisture of the air produces corrosive sulphurous and sulphuric acids.

A mining engineer recently communicating with the St. Louis Smoke Abatement Commission believes that the pungent ingredients harmful to human health are probably tar and other distillates, and not the above mentioned acids, supporting his hypothesis with the observation that he and his associates, occupied for the past sixteen years in the operation of sulphide ore roasting and consequently exposed to sulphur gases in relatively high concentration, have experienced no sinus trouble. It must be remembered that exposure to infection should be taken into consideration, and that exposure to sulphur gases combined with crowded living conditions may be less innocent than in the situation mentioned.

Methods of obtaining analyses of the smoke content of the outdoor air in cities are very unsatisfactory. Open pans set out on roofs for the purpose of collecting soot which settles down, soon gather leaves, insects, street dust and other contaminations. Cloth screens through which air is forced have been employed, but the method is said by those who have used it to be far from accurate.

It has been contended that the smoke pall which hangs over cities so impedes the ultraviolet rays from the sun as to impair human health. In the City of Chicago, for instance, the amount of sunshine has been reduced 12 per cent in the past five years according to the department of health of that city. The amount of ultraviolet light which reaches the temperate zones of the northern hemisphere has been shown to be extremely small even in the clear air of the country, so that this influence must be negligible.

Other noxious gases which hang about industrial centers, and the dust of cities irritate much or little depending on their content. The allergic reactions of house dust will be discussed elsewhere.

In the design of central heating systems humidification has been strangely neglected, and many of the humidification plants now in use do more harm than good. It is obvious that in atmospheres so dry and warm as to cause furniture to split and oil paintings to crack, the nasal mucosa finds difficulty in main-

\* Read before the St. Louis Medical Society, December 17, 1929, in a Symposium on Nasal Sinus Disease.



taining normal conditions. Secretions evaporate, ciliary action is retarded or prevented, and infection ensues.

Certain motion picture houses pride themselves upon maintaining a temperature of 72°, regardless of conditions on the street where the temperature may be 100°. It is not surprising that the nasal vasomotor system fails to adapt itself to its surroundings under such conditions.

Grant, Mudd and Goldman, of St. Louis, in 1920, and Hill and Muecke, of London, in 1913, published the results of sudden chilling of the body surface. All found that chilling was a potent factor in the reduction of resistance to infection, and that on occasion pronounced changes in the flora of the throat occurred.

As to climate, no general rules can be laid down which will apply to all cases. The popular opinion that certain parts of the country are hot beds of sinus disease is without foundation. It exists everywhere to a disquieting degree. As a general thing the disease is less prevalent in the far north where winters are long and cold. Paradoxically, patients with chronic sinus disease under treatment fare better in warm, dry climates.

In regard to the effects of the endocrine glands upon the sinuses and their diseases, I do not feel justified from the literature available in drawing any conclusions. It would appear that endocrine disturbances affect the sinuses only in so far as they determine the general condition of the patient.

Dr. Dean in his paper has covered the question of diet in some detail; therefore, I will touch very lightly upon this subject and not tire you with repetition.

An adequate discussion of diet in relation to sinus disease would exhaust several programs of the length of this one. As early as 1881 investigators began to sense the importance of certain food elements which have since come under the name of vitamins. Those vitamins which are especially important to us are, in the order of their importance, A and B. Their relations to sinus disease was first reported by Daniels about 1918. It was found that rats, in which an ophthalmia had been produced by the administration of a vitamin A deficient diet, suffered sinus infections in which the microscopic changes were similar to those in the human. Dr. Daniels showed that the sinus infection could always be produced by this diet, and that it did not exist in the controls. It was demonstrated, further, that during the early stages of sinus infection correction of diet resulted in improvement or recovery, but that this was not the case once the disease was well established.

Clinical researches which followed determined that correction of diet alone is insufficient to bring about a cure, but that in conjunction with proper laryngologic and hygienic procedures, proper diet is of great importance. Vitamin A deficient diets result in low resistance to bacterial infection throughout the body. Children properly fed from birth are notably free from these infections, including sinus disease.

In adults, whose sinus membranes are chronically infected, administration of vitamin A and B containing diets produces little effect, but it may be safely stated that in these trying conditions which call forth all our resources, it is important to reinforce local measures with a properly selected diet especially rich in vitamins A and B.

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## THE TREATMENT OF Milder CASES OF ACUTE SINUSITIS\*

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The main object in the treatment of an acute sinusitis is to drain and ventilate the sinus or sinuses involved.

The etiology of an acute sinusitis should of course always be taken into consideration and determined if possible. The great majority of the simple cases are due to an extension from the nasal mucosa, either during or following an attack of acute coryza. The treatment then will depend on how long the coryza has existed and the extent to which the sinuses have become involved when the patient presents himself for relief.

At the onset of an acute sinus infection the treatment should be more of a general nature, directed toward the relief of the existing acute rhinitis rather than by local applications. It is at this stage that much damage is done by local applications and the introduction of irritating solutions into the nose. The general public, thanks to the advertisements of various so-called nasal antiseptics, has taken it upon themselves to treat their own sinuses and as a result we see many cases which would undoubtedly have subsided had they been left alone. The treatment of an acute sinusitis is comparable to the treatment of an acute urethritis. It will be impossible in the time allotted to discuss the various methods of treatment. I will therefore only outline the treatment which has been found most satisfactory in my hands.

If the patient is seen at the onset he should be put to bed. The temperature of the room

\* Read before the St. Louis Medical Society, December 17, 1929, in a Symposium on Nasal Sinus Disease.

should be between 68 and 70 degrees Fahrenheit. He should be given a saline purge which will aid greatly in relieving the congestion of the nasal mucosa. In addition to this the administration of one half grain camphor, two grains each phenacetin and acetylsalicylic acid at two hour intervals, will not only relieve the patient's general discomfort but will lessen the sneezing and watery discharge from the nose. A sweat bath is also beneficial, but I have not found that the large doses of acetylsalicylic, twenty grains every two hours "as recommended by some authors" to be necessary or even advisable. Certainly prescriptions containing whiskey are to be strictly prohibited as alcohol increases the congestion in the sinuses and only adds to the discomfort of the patient. The inhalation of steam impregnated with menthol, ten grains to a pint of boiling water, which may be used as often as every hour, has a very soothing effect. In many instances spraying the nose with a weak solution (1½ per cent) of ephedrine every two hours will reduce the swelling of the mucosa and provide drainage and ventilation. This alone will suffice in the milder cases. Adrenalin chloride solutions will also reduce the swollen nasal mucosa but the usual 1:1000 solution should not be used in acute cases as severe reactions often follow which will greatly aggravate the condition. When adrenalin is used it should not be stronger than 1:8000. It should also be freshly prepared as the solution becomes irritating after several days. The ephedrine solutions have largely replaced the use of adrenalin.

Weak solutions of cocaine in oil may also be used in the form of a spray, but I personally am opposed to giving patients cocaine for home use for the reason that this habit-forming drug can and has produced addicts when originally used as a nasal spray.

When there is pain over the antrum or frontal sinus, towels wrung out of hot water will aid in relieving it. Sometimes an ice bag will be more comforting to the patient. The electric light head bath of Killian, consisting of several incandescent lights contained in a square box placed directly over the face of the patient with the eyes protected, is often of considerable advantage especially in the frontal sinus cases when used in the early morning before the attack of pain comes on. It may be used several times a day.

After the sinusitis has existed for several days and the purulent stage has been reached mild suction may be employed; this will not only clear the ostia of the sinuses but some of the pus may be withdrawn from the sinuses themselves. The suction, however, must be used very cautiously as much harm can be done by using it too strong. The mucous membrane

may be traumatized and severe reactions may follow which block the openings of the sinuses and cause the patient unnecessary suffering and prolong the attack of the sinusitis. A safer procedure is to reduce the swelling of the mucosa by gentle application of cocaine, two to four per cent, or ephedrine by means of small cotton swabs in the vicinity of the ostia and allowing them to remain for ten minutes. These swabs should be introduced with the greatest care possible as the mucous membrane should not be traumatized in the least. After the mucosa has been relieved of its engorgement and there is a profuse discharge of pus from the sinuses, a warm saline douche may be used to clean the nasal passages. The instillation of a ten per cent solution of argyrol after the nasal douche undoubtedly has a marked influence in reducing the inflammation of the nasal mucosa.

If the discharge should continue and the symptoms point to a maxillary sinus involvement this sinus should be irrigated either through the normal opening or through a trocar introduced into the sinus in the inferior meatus. In many instances the sinusitis will subside after several washings. If it does not, it is better to make a large window under the inferior turbinate as this will not only allow for better drainage but will make subsequent irrigations much easier for both the patient and the surgeon. When the maxillary sinus and frontal sinus are involved at the same time, which is frequent, relief of the maxillary sinus by irrigation will be followed by a subsiding of the inflammation in the frontal sinus. During the acute stage it is not advisable to irrigate the sinuses as violent reactions sometimes follow. It is better to wait until the acute symptoms have subsided. Irrigation of an acutely involved frontal sinus should not be done even when possible as the possible benefits gained by the irrigation are more than undone by the probing and manipulation necessary in introducing the canula. Uncomplicated acute inflammation of the ethmoid cells or the sphenoid cavity rarely calls for any surgical interference. The measures employed in the treatment of the maxillary and frontal sinuses will answer for these sinuses as well. If the middle turbinate is enlarged and blocking the opening of the frontal sinus the anterior end should be removed, but this also should be done with the least possible trauma to the surrounding tissues. If there are marked pathological conditions in the nose, such as hypertrophy of the mucosa, deviation of the septum, or nasal polypi, which interfere with drainage, these conditions will have to be corrected but not until the acute symptoms have subsided.

Vaccine therapy up to the present time is



disappointing. General measures which tend to build up the general resistance of the patient through proper diet and exercise and the correction of any pathological condition in the nose will be found more satisfactory. It is well known that patients, other than allergies, with normal upper respiratory passages rarely have sinus infections.

218 Beaumont Medical Building.

## SOME ACUTE SURGICAL INFECTIONS

A SUGGESTED PLAN OF TREATMENT\*

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I use a simple bacteriological classification for the common acute surgical infections. I believe particular attention should be given to the staphylococcus and the various results following infections by this organism. The classification I use follows:

### 1. Staphylococcus infections:

Local	{	Furuncle
	{	Carbuncle
	{	Whitlow or felon

General Bacteremia (pyemia)

### 2. Streptococcus infections.

### 3. Other infections.

The staphylococcus is the most common pathogenic organism found on the skin and the most frequent cause of suppuration. It has a powerful tryptic action, giving off the soluble proteolytic toxin, staphylolysin, which dissolves red blood cells, and also leukocidin, which injures leukocytes. It contains an endotoxin that produces positive chemotaxis and fibropurulent inflammation. Even the injection of killed cultures is followed by suppuration. It resists drying and sunlight and may remain alive in dust for a month or more. In culture, it produces a transmissible autolytic substance, or bacteriophage. It does not multiply in the blood but rapidly disappears when the source of infection is removed.

Metastatic purulent foci (pyemia) occur in 95 per cent of general infections. As the furuncle comes first, let us look into its history and definition. The Latin meaning of furuncle is thief or knave, and is synonymous with the term boil. In Biblical history we read that 1500 years B. C. people and animals were afflicted with a plague of boils or blains (Ex. 9:10), and that Job was smitten with boils from the sole of his foot unto his crown (Job 2:7).

A furuncle is a small, sharply circumscribed, acute, conical inflammatory, suppurative, cutaneous lesion due to staphylococci. It involves the skin chiefly rather than the subcutaneous tissues and frequently is multiple. A slough forms in the center, the core is expelled and the cavity heals by granulation. It begins as a folliculitis involving a hair follicle, a sebaceous gland or a sweat gland. Insect bites, such as the chigre, aggravated by scratching, squeezing, picking or iodine may develop into furuncles. The development of furuncles is favored by glycosuria, albuminuria, the eruptive fevers, etc., but they are seen in otherwise healthy persons.

When diabetes, gout, Bright's disease, or anemia is present, the skin lacks power of resistance against infection. Carbuncles, felons, bacteremia, and successive crops of furuncles, should direct our attention sharply toward prophylaxis and proper treatment, including local surgical attention.

For prophylaxis we must eliminate the sources of infection. It is well to remove foci in tonsils, paranasal sinuses, jaws, fistulae, etc., except in cases of bacteremia. Prompt attention to insect bites or stings may also avert an infection.

Treatment proper should consist of (1) maintenance or increase of resistance by (a) sufficient selected diet, (b) production of normal elimination, (c) sunlight, fresh air, exercise and bathing, (d) medicines and surgical care. The administration of iron, arsenic, cod liver oil and yeast are worth a trial. Sodium cacodylate .5 to 1 Gm. injected subcutaneously at 4-day intervals has been beneficial in some of these skin infections. A limited immunity of from 6 to 12 months may be developed by a vaccine. In diabetics do not overlook the cautious administration of insulin, with proper diet. (2) Surgical care depends upon the (a) location, (b) avoidance of all trauma, and (c) prevention of other furuncles, carbuncles or an attendant bacteremia.

There prevails widespread public opinion that furuncles or boils are not dangerous to life but several recent deaths of prominent citizens in our community has changed this opinion. Frequently there exists a hair follicle infection, and a hair is pulled out of the nostril. Following this procedure different kinds of trauma are added, such as application of solutions of silver nitrate, and picking and squeezing. If I may add one word of warning let me say "never pick or squeeze a furuncle of the nose or upper lip," for you are inviting a staphylococcus septicemia with cavernous sinus thrombosis resulting which in all probability will kill the patient. The reason for this is the almost entire absence of subcutaneous fat

\* Read before the St. Louis County Medical Society, June 19, 1929.

in these parts, the muscles being attached directly to the skin, the great vascularity with numerous anastomosing venous channels which have direct communication with the sinuses of the brain through the angular and ophthalmic veins, and to the neck through the radicles of the facial vein. Furuncle about the lip and face should therefore always be treated with the utmost gentleness. They should never be pressed upon nor squeezed with the idea of pressing out the pus or "core," because of the great danger of spreading the infection along the veins or of dislodging septic thrombi. Experience has shown that it is safer to apply hot, moist, antiseptic dressings and to allow the "center" to evacuate itself spontaneously.

My preference recently is to avoid heat in the early stages and resort to cold applications, as is done in threatened mastoid inflammation. I believe it is not generally appreciated that the injudicious use of the hot water bottle to a mastoid region when acutely inflamed will promptly develop mastoid suppuration. It is therefore contraindicated. For similar reasons, in nasal furuncles cold applications, although "slowing down the speed of the suppurative process," constrict and further isolate the area until the leukocytes have securely walled off the infective focus, or at least blocked the exits to the distant venous trunks. Later on, hot applications may be used, but never trauma. It is well to impress this on every nurse, patient and family.

Should septicemia develop, probably the best chance of recovery lies in protecting and conserving the vital forces, with an occasional blood transfusion. In every case that I know of, where there have been more than five colonies per cc., death has been the result.

In other less hazardous locations, I have carried out my own plan, not hitherto disclosed. Having once been the victim of crucial incisions and too often having heard patients complain of the knife, I have developed the following method:

With a fine toothed eye forceps I gently follow the opening of the hair follicle downwards. As soon as sufficient debris has been removed I apply a one-grain tablet of novocaine of special design,<sup>1</sup> and a drop of sterile saline solution or water. This will form a paste which can be carried down into the crater in the skin. In this concentrated strength, sufficient anesthesia results to allow further removal of the center of the core and the placing of a tiny gauze wick or plug. The boil is dressed with a warm moist dressing, cellosilk and a duo patch, and the patient is quite comfortable.

The next day remove the gauze plug and

wipe off the surrounding skin with ether and apply a 70 per cent alcohol pack till the furuncle is tended to and to prevent a spread of pus. This is done at each dressing. On the second visit a tablet of novocaine is introduced through the skin opening, after picking out the loose debris. Sometimes a blood droplet or serum accumulates. This I remove with a tiny pointed piece of moist cotton which dries out the crater so that a perfect view is obtained and the anesthetic then may be carried to the depths. As many as five or ten such pledgets may be required. Usually the patient is well after four or five treatments. If properly performed the patient does not suffer any pain whatever and the scar cannot be located a month later.

In those individuals who develop furuncles frequently a furunculosis vaccine may be used, but these patients should be built up to overcome their underweight. A vacation in the mountains is often curative. Diabetics require insulin and diet.

A carbuncle is a neglected or aggravated furuncle, undermining the skin margins widely and is located in areas where the skin is rather fixed. Because of its size and the quantity of toxins liberated, it persistently saps the patient's strength. It is single, larger and deeper than a furuncle, has multiple openings and is dome shaped. A carbuncle is a massive, acute, inflammatory, necrotic and suppurative lesion of the skin. It occurs only where the skin and subcutaneous tissues are dense and thick, as on the back of the neck, the back, buttocks and face. A furuncle in dense skin may be exacerbated into a carbuncle by squeezing or other trauma.

*Treatment.*—For large, fully developed carbuncles, circular excision to the deep fascia or muscle is indicated under nitrous oxide or ethylene, followed by packing with moist antiseptic gauze. Excision eliminates the long period of necrosis and suppuration, reduces septic absorption, gives prompt relief from severe pain, and leaves a large wound to heal by granulation or to be closed by skin graft. Moderate sized carbuncles do not require treatment other than for furuncles. Rieder has made crucial incisions, loosened up the edges and tamponaded with diphtheria antitoxin or horse serum and reported good results.

Felon (whitlow) is an abscess involving the palmar surface of the finger. There are four general types: (1) Subcuticular felon,—the formation of a pustule under the epidermis; (2) subcutaneous felon occurs over the distal phalanx following a wound, usually the perforating type (3) subperiosteal bone felon; (4) synovial thecal felon (suppurative tenosynovitis).

1. Devised by Dr. Bransford Lewis, St. Louis. It is extremely soluble and does not contain any adrenalin.



Felon usually is first seen by the general practitioner. In order to control the infection, Kanavel has pointed out that in a structure as intricate as the hand, with its different nerves, multiple joints and tendons acting in different planes and its definitely arranged blood supply, the preservation of function presents a complicated problem. However, the essentials should be clear in our minds for then we can work out the unusual or atypical case.

The subcuticular and subcutaneous types of felon are by far the commonest and if treated early and properly, excellent function with no deformity results. The subcutaneous type is the result of a prick, scratch, blister or wound and the usual signs and symptoms of inflammation are present. The finger becomes red, hot, swollen, the seat of severe throbbing pain, and there is some loss of function, without very much constitutional disturbance, the temperature ranging around 99.4° to 100° F. One should not depend on fluctuation because fluctuation is present in the pulp of a normal finger.

In the common subcutaneous type of felon, one should always bear in mind that the epiphysis of the terminal phalanx receives its blood supply before the vessels enter the "closed space," while the diaphysis (beyond the base) receives its blood supply from the vessels which traverse the closed space. In such an inflammation then, exudation results. The tension is raised and pressure on the veins leads to further exudation. This leads to further pressure on the veins, with vascular thrombosis resulting, followed by necrosis of the diaphysis of the terminal phalanx, the base escaping owing to the origin of its blood supply from without the closed space. Necrosis may occur in from 24 to 48 hours, and the severe pain is then relieved. I would like to emphasize that severe throbbing pain is the most important symptom of a felon involving the terminal phalanx, while a hard tender phalanx is the most important sign.

*Treatment.*—As soon as one is sure that he is dealing with a felon and not with lymphangitis, immediate drainage should be established. One may commit just two errors in the treatment, namely (1) incise a lymphangitis, and (2) wait for fluctuation, which endangers the bone and causes the patient much needless suffering.

Kanavel has emphasized that the incision should be made as soon as the edema restricted to the distal phalanx has proceeded to a degree causing a hardness, but not necessarily the board-like feeling characteristic of pus in other subcutaneous areas. In general, one should incise when there is a painful, tender, distal phalanx, with excessive edema limited to the phalanx.

While I have frequently met with dorsal edemas in thumb felons, it is well to remember that edema of this sort is a frequent accompaniment of palmar infections, the skin pinkish in color and pitting easily. This should never be incised. The dorsal edema is due to the direction of lymphatic flow from the palm to the dorsum and the thick middle part of the palmar fascia.

In considering incision, my observations and those of other surgeons forcibly impress upon me the many advantages of the so-called horse-shoe incision. This incision removes (1) the scar from pressure, (2) the delicate anterior nerve plexus is untouched, (3) the fibrous septa radiating from the phalanx to the skin are divided and thus the tension in the closed compartment relieved, (4) the possibility of incising beyond the base of the phalanx and infecting the flexor tendon sheath is obviated. As a preliminary give  $\frac{1}{4}$  gr. of morphine prior to anesthesia.

*Technic.*—I always anesthetize the patient with nitrous oxide, ethylene, or ether, and then apply a tourniquet to the upper arm. Local anesthesia may scatter the infection and is not satisfactory. I then make the usual horse-shoe-shaped incision, parallel to the nail and about  $\frac{1}{8}$  inch anterior to it, through skin and fascia. I begin the cut half way between the base of the distal phalanx, into which the flexor tendon is attached, and the visible nail, and circle the tip of the finger to the same site on the opposite side. Then, looking carefully, the closed compartment with its pockets of pus is carefully opened laterally, a vaseline gauze or rubber drain is inserted between the two flaps, a dressing applied and the tourniquet removed. All other incisions have been unsatisfactory in my hands, although the hockey stick incision has been recommended.

*Postoperative Care.*—Do not overlook the value of bed rest in these cases. Passive hyperemia for one hour at a time, as advised by Bier, should be tried. Hot soaks or voluminous hot dressings saturated with normal saline or boric acid, or even Dakin's solution, may be used. The hot soak is the best pain reliever we have that can be entrusted to the patient. Hot dry air is also valuable when the slough has separated. Ordinarily no splint is required.

*Streptococcus Infections.*—Streptococci multiply in the blood and the bacteremia is very serious. The *S. viridans* is commonly found about teeth and in alveolar abscesses, and in the blood stream it causes malignant endocarditis, cholecystitis, appendicitis and possibly gastric ulcer.

Local streptococcic infections have a very short incubation, a marked early edema, and a tendency to rapid spread through the lymph

vessels. There is local pain and inflammation, followed by red cutaneous lines that streak to adjacent lymph nodes, lymphadenitis, chill, high temperature and nervous stimulation with delirium.

After the first few hours the process has spread beyond the reach of any local measure, and trauma such as handling, squeezing, incising or amputating the part, only reduces the local resistance and favors a general and fatal bacteremia. Squeezing and scraping as practiced by some dentists in the extraction of a molar tooth is reprehensible in these infections. The trouble is that we too often overlook a lymphatic leukemia, so it is well to remember that even the extraction of a tooth may be all that is needed to wipe out your patient's life. Then, too, there may be a streptococcus lying around waiting for a port of entry.

825 Metropolitan Building.

## THE DETERMINATION OF THE CAUSES OF BLINDNESS \*

H. D. LAMB, M.D.

ST. LOUIS

The determination of the cause of blindness can be made with accuracy in all but a few cases. The all-important point is to reason back to, or to deduce, the primary blinding ocular condition from the changes found at the time of the examination. This presupposes a knowledge of ocular pathology and careful observation of the blinded eyes. The latter is the weak link because when the subject is hopelessly blind the examiner feels that the cause is of little consequence and loses further interest in the eyes.

No more valuable study in ocular pathology is possible than the study of blind eyes. It is analogous in some ways to a postmortem of the body, for in each we attempt to deduce what was the real cause of the destruction. Postmortems are of no value to their subjects and neither are diagnoses on hopelessly blind eyes. But how much more scientific it is to make these determinations accurately.

Our reason for attempting to stimulate this interest in blind eyes is mainly to obtain useful statistics on blindness. Just as postmortem findings are of the greatest value in the treatment of other cases, so the diagnoses on blind

eyes are of the greatest importance in the prevention of further blindness.

If the cause of blindness is determined, it should be stated definitely and briefly as an ocular disease or malformation, except in cases of accident. A long detailed description of ocular changes to designate the cause of blindness is usually only confusing to the reader.

The history or patient's account of the ocular condition is in many cases of considerable value, but the signs or actual eye changes present must be the determining factor.

1. It is best to inquire as to injury or trauma. Of course, the examiner is here almost entirely dependent upon the patient's statements. What was the actual destructive agent and could this agent have produced the present ocular changes? If not, the injury should be ignored. If sympathetic trouble is alleged, the uninjured fellow eye should show the characteristic signs of a previous plastic uveitis—clear cornea with the iris atrophic, and *occlusio* or *seclusio pupillae*, or both, frequently with *iris bombé* and low tension.

2. The cause of blindness should never be designated (except traumata) by anything but an ocular term. Of course it is valuable to add that the designated ocular changes were due to diseases, such as meningitis, brain tumor, syphilis, typhoid, but to state these latter conditions only as the causes of blindness is not sufficient.

3. The primary ocular change or condition is the one which should always be given as the cause of blindness. Cataract may occur in a microphthalmic eye; uveitis in an eye with parenchymatous keratitis; or glaucoma after cataract changes or after cataract extraction; but the cause of blindness is the microphthalmus, parenchymatous keratitis or cataract.

4. To say that corneal opacities, pannus, staphyloma, *occlusio pupillae*, or vitreous opacities is the cause of blindness, is to name the results or effects in place of the original cause. Only the ocular disorder that produced the eye changes should be given.

5. The simple terms "keratitis" and "retinitis" are of no significance; there are many varieties of each.

6. There should be little confusion regarding the diagnosis of *ophthalmia neonatorum*. A perforating corneal ulcer resulting from a purulent conjunctivitis under 6 months of age should be put in that class.

7. An uveitis or destructive inflammatory involvement of the ciliary body with either the iris or the choroid, or both, is a very definite and easily recognized condition.

8. Of course no eye should be called simply

\* This brief article was written especially to stimulate interest in the determination and recording of the causes of blindness in the various state schools for the blind throughout the country. It is the intention, of course, that each year all the records be summarized under the auspices of the American Association of Instructors for the Blind or by one of the national societies for the blind. The suggestions made in regard to diagnoses are those found to be needed from numerous years of observing the usual careless determination of the causes of blindness by the eye physician.



cataractous where the vision is nil or light projection is faulty. Such cases can only be called complicated cataract, except where there is poor light projection in secondary cataract.

9. The use of the terms "congenital amblyopia" and "congenital amaurosis" is bad. Where no apparent changes can be made out in a blind eye, the meaning desired can be conveyed by stating that postocular amblyopia or amaurosis is present.

10. Medically speaking, there is no such condition as congenital blindness; there is only blindness resulting from some well recognized hereditary or congenital ocular change, which should be named. A sharp distinction should be made between hereditary and congenital conditions, the qualification, "hereditary," being used only when the same ocular change appears in more than two generations.

11. In cases of atrophy of the eyeball, apart from wounds, the original ocular disease of

uveitis, glaucoma or corneal ulceration may often be determined by a study of the corneal, scleral and iritic changes. Where phthisis bulbi has occurred, however, it is impossible to tell anything of the condition which caused the panophthalmitis. Here recourse is limited to the patient's statements.

12. It is not uncommon to have one eye blinded from one cause and the fellow eye from an entirely different etiology. It must be made plain in listing causes of blindness that such is the case. The author suggests using R and L to designate each eye and indicating the corresponding fellow eyes as R<sup>A</sup> L<sup>A</sup>, R<sup>B</sup> L<sup>B</sup>.

There is appended a form for tabulating causes of blindness, sex, vision, age of entering school, age at loss of sight, and color of blind persons. It would seem best to have copies of this, or a similar form, sent to each school for the blind. Findings would thus be uniform and therefore comparable.

For the period of.....in.....

Causes of Blindness	Totals	Male	Female	Vision	Age	Age Lost Sight	Color W.B.
Optic atrophy							
Ophthalmia neonatorum							
Glaucoma							
Corneal ulceration							
Trauma, simple							
Trauma and sympathetic ophthalmia							
Cataract							
Hereditary cataract							
Uveitis							
Choroiditis and chorioretinitis							
Retinal degeneration							
Trachoma							
Hydrophthalmus							
Microphthalmus							
Parenchymatous keratitis							
Prenatal corneal opacity							
Optic neuritis							
Myopia							
Retinal detachment							
Keratoconus							
Anophthalmus							
Aniridia							
Coloboma of iris, choroid or optic nerve							
Hereditary dislocation of lenses							
Amblyopia ex anopsia							
Phlyctenular keratitis							
Albino							
Postocular amblyopia							
Malignant growth							
Vascular changes in retina or optic nerve							
Essential shrinking of conjunctiva							
Postocular changes							
Burns, chemical and fire							
Complicated cataract							
Phthisis bulbi							

REMARKS:

Date

Eye Physician

(FRONT OF CARD)

Accession No.	Name	Date of examination
Age	Age became blind	
Cause of blindness assigned, on application		
Cause of blindness corrected diagnosis of		
Vision	Right eye	Left eye
Condition of eyes:	Right	Left

(BACK OF CARD)

Stigmata of general defects or diseases		
Recommendations		
Operation	Recommended	Written
Permission given	Refused	Date of operation
	School for the blind	Ophthalmologist

This record card for the individual blind pupil might well be the one now in use in many schools for the blind, adopting an orange colored one for boys and a blue one for girls. There are blank spaces for all the data on the proposed summary blank. There is printed here the headings on the front and back of this 5 by 8 inch card.

# WASHINGTON UNIVERSITY CLINICS

## SYPHILIS OF THE STOMACH

WITH REPORT OF TWO CASES

LEON BROMBERG, M.D.,

AND

GUY N. MAGNESS, M.D.

From the Department of Internal Medicine of Washington University and the Barnard Free Skin and Cancer Hospital.

Presented at the Friday Morning Clinical Conference.

Andral<sup>1</sup> observed two patients in 1834 known to be suffering from syphilis and presenting severe gastric symptoms. When they were greatly benefited by the administration of mercury and iodide he felt that the diagnosis of syphilis of the stomach was justified and made the first important clinical report on the subject.

Since that time the affection has been noted with increasing frequency, particularly since the advent of the X-ray and the Wassermann reaction. Singer and Meyer<sup>2</sup> in a recent study of syphilis of the stomach with special reference to its incidence emphasized the wide discrepancy that exists between the rarity of the condition as indicated by necropsy statistics, and the relative frequency with which gastric syphilis is diagnosed clinically. Symmers<sup>3</sup> at Bellevue Hospital, New York, found only one case of specific gastric involvement among 314 syphilitic subjects in a study based upon 4,880 autopsies. Turnbull<sup>4</sup> noted only one doubtful instance of syphilis of the stomach in 3,000 postmortems at the London Hospital. On the other hand, the clinical literature abounds with cases bearing the designation of gastric syphilis. Hartwell<sup>5</sup> in a critical review of the subject from the pathological and clinical viewpoints found over 200 cases recorded in the literature up to 1925. Reports of large series of cases of gastric syphilis have greatly swelled, perhaps doubled, this number in the last five years. In Cook County Hospital, Chicago, Singer and Meyer<sup>2</sup> were able to demonstrate microscopic changes of syphilis in four surgically resected stomachs during a period of six years, while during the same length of time no instance of gastric lues was discovered in 5,000 consecutive autopsies. These authors point out that the striking contrast between the rarity of syphilis of the stomach in the experience of morbid anatomists, and its relative frequency among clinicians, is chiefly due to two causes: (1) Some of the reported cases are lacking in critical analysis and on careful scrutiny may be excluded; (2) many of the cases diagnosed at autopsy as instances of be-

nign pyloric hypertrophy, hour-glass stomach, linitis plastica, etc., actually represent cases of gastric syphilis encountered in the healing or healed stages. The extreme difficulty of proving by histological evidence the syphilitic nature of a lesion is universally recognized by pathologists; the spirochete, which is the final test of a positive diagnosis, has been found only once in a lesion of the stomach (McNee<sup>6</sup>). Singer and Meyer conclude that "the present situation relating to the incidence of syphilis of the stomach is analogous to the former status of the duodenal ulcer. Only after repeated surgical demonstration did pathologists and skeptical clinicians finally subscribe to the idea that duodenal ulcer was far more common than former autopsy statistics indicated."

Gastric syphilis has no characteristic clinical picture. Larimore<sup>7</sup> in a report of eight previous cases from Washington University Clinics has called attention to the fact that different types and stages of gastric syphilis present markedly diverse findings. The mere coincidence of a positive Wassermann and digestive symptoms is slight reason for assuming a diagnosis of syphilis of the stomach. Stokes and Brown<sup>8</sup> studied the case records of 200 syphilitic patients whose chief complaint was "stomach trouble." Twenty of these patients showed some organic lesion of the stomach or duodenum. The authors felt, however, that in only eight instances was syphilis of the stomach present.

Brams and Bloch<sup>9</sup> analyzed 142 cases of gastric lues selected from the literature, in which the diagnosis was made on what they considered reasonably certain evidence. The clinical manifestations most commonly found and considered of prime importance in the diagnosis of syphilis of the stomach, were, briefly, as follows: 1. *Pain*.—Epigastric pain was present in all but three instances. All varieties and degrees of this symptom were reported, but as a rule it simulated closely the boring, or gnawing, and burning postprandial pain so well known in gastric ulcer. There was no characteristic radiation. Alkalies afforded relief at first in the majority of instances, but the general experience was that later on in the progress of the disease the pain resisted all medicinal and dietary alleviation. 2. *Anacidity or Subacidity*.—In 85 per cent of the cases in which gastric analysis was performed, there was a marked reduction in the hydrochloric acid content, or an anacidity. (In the eight cases previously reported from Washington University by Larimore<sup>7</sup> and Graham<sup>10</sup> there was an anacidity in one instance, and hypochlorhydria in the remaining seven which averaged about 6 degrees of free HCl.) 3. *Emaciation*.—Loss in weight was usually quite



marked—from thirty to forty pounds on the average. A considerable loss of weight was reported in 87 per cent of the cases. Anemia was not an infrequent accompaniment of the loss of weight, and the question of malignancy was prominent in the differential diagnosis. In general the constitutional manifestations of syphilis of the stomach were less pronounced than those common in gastric carcinoma. The age incidence was also lower in the former condition. 4. *Evidences of Syphilitic Infection*.—Many of the cases comprising this series were reported before the Wassermann reaction was being performed. In the 96 cases, however, in which there was serologic study, complement fixation was strongly positive in 97 per cent. There were 9 additional cases in which there was no Wassermann reaction but undeniable clinical stigmata of syphilis. Two instances were quoted in which the diagnosis of syphilis of the stomach was sustained by clinical evidence and the brilliant results of specific treatment in spite of the fact that the Wassermann reaction was negative (G. M. Niles,<sup>11</sup> Antoine and Brams<sup>12</sup>). Eusterman<sup>13</sup> considers the finding of evidence of syphilitic infection elsewhere in the body essential in the diagnosis of gastric lues.

5. *Response to Specific Treatment*.—The therapeutic test was the most striking and reliable of all. Improvement or clinical cure was characteristic after ordinary management had failed to benefit the patient. Out of 132 cases in which the treatment was detailed, 62 per cent were considered clinically cured, 30 per cent were definitely benefited, 8 per cent unchanged. A return to the normal gastric chemistry, and an improvement in the gastric defect and function, as noted by X-ray examination, were often observed under adequate therapy.

6. *X-Ray Examination*.—In general, the roentgen ray findings resembled those seen in carcinoma of the stomach, filling defects of the pylorus being most frequent. Carman,<sup>14</sup> of the Mayo Clinic, from the roentgenologist's standpoint, outlined the following points as characteristic of gastric syphilis: (1) Filling defect of the gastric outline, usually without corresponding palpable mass; (2) shrinkage of gastric capacity; (3) stiffening and lessened pliability of the gastric wall; (4) absence of peristalsis in the involved area; (5) pylorus gaping rather than obstructed; (6) six hour retention less common than in other gastric lesions (23 per cent); (7) so-called hour-glass stomach; upper loculus expanded and bulbous, lower loculus tubular, due to extensive irregular contraction; (8) patient usually under cancer age and not ill in proportion to the extent of the disease shown by the X-ray.

All roentgenologists recognize the fact, however, that the X-ray picture of syphilis of the stomach necessarily varies with the nature of the underlying luetic process, and is seldom, if ever, diagnostic per se. Carman,<sup>14</sup> after a long experience with cases of this type, candidly confessed "In common with other X-ray workers I have occasionally fancied that there was something in the roentgen appearances of gastric syphilis which helped to distinguish it from cancer, but upon reflection I am convinced that the disproportion between the patient's general condition and the condition of his stomach as revealed by the X-ray is the dominant, perhaps the sole, distinguishing feature, and this of course cannot be final and absolute."

The most commonly accepted classification of the clinical varieties of syphilis of the stomach is that of Bensaude and Rivet, namely, ulcerative, tumefactive, linitus plastica, and stenotic types. The pathological findings, the X-ray picture, the symptomatology, and, indeed, the clinical prognosis, are all dependent on the duration of the infection and the type of gastric lesion (ulcerative, tumefactive, fibrotic or obstructive) caused by the invading syphilitic process. Eusterman<sup>13</sup> found forty cases of syphilis of the stomach during an investigation of more than 6,000 cases of ulcer and cancer of the stomach at the Mayo Clinic. The clinical picture which he reported was highly variable. Pain was present in 39 of the 40 cases, usually appearing shortly after eating. The relief afforded by food, alkalies, etc., soon disappeared. In those cases where there was marked anatomical deformity, there were distressing obstructive symptoms due to mechanical factors. Hemorrhage was comparatively rare, noted in only two of his cases. Next to pain, the symptoms of importance were emesis, nausea, flatulency. It is important to note, as a differential diagnostic feature, that in contrast to the marked anorexia of carcinoma more than half of Eusterman's patients had a normal appetite. The average loss of weight was 35 pounds.

An analysis of the order and frequency of involvement of the parts of the stomach showed that syphilis usually attacks the lower third; next in order, the media (including those cases of hour-glass deformity); finally, there was the general marked involvement of the cirrhosis type. The rarest form is that in which the pars cardiaca alone is involved.

From a pathological standpoint, syphilitic ulcer of the stomach does not differ grossly in any distinctive way from simple gastric ulcer, although suggestive features are, its tendency to be large, its irregular serpiginous border, its

firm smooth base, and thickening of the stomach at a distance from the ulcer itself. Multiple lesions are more common in syphilitic processes than in benign ulceration. When there is a gumma, it is rarely fully developed; microscopically it is found to be a circumscribed area of granulation tissue densely infiltrated with inflammatory cells, but devoid of central necrosis en masse. The cirrhotic form, which thickens and deforms the major portion of the stomach wall, is self-descriptive.

The treatment of gastric syphilis must be adapted to the needs of the individual case. The majority of cases of uncomplicated syphilis of the stomach will respond promptly and gratifyingly to the classic remedials of mercury, arsenic, and iodide, which, as a rule, should be more vigorously administered than is the practice in the treatment of late syphilitic lesions of other viscera. Dietary management is simple: the use of bland, easily digested foods, frequent feedings. As the patient improves, all dietary restrictions may be lifted. If an achylia exists, the administration of dilute hydrochloric acid seems rational. A complete restoration of gastric function, frequently accompanied by an effacement of the deformity in contour noted on X-ray examination, is to be expected within a few weeks of adequate antisyphilitic therapy. There is a rapid gain in weight. This improvement under specific treatment must be regarded as the most important evidence of all in the diagnosis of syphilis of the stomach.

If the anatomical deformity is severe or of long standing, surgical intervention may be indicated in addition to antisyphilitic treatment. Indeed, there may occur in rare instances the so-called "paradox of healing" where the replacement of a soft gummatous lesion with unyielding scar tissue as the result of medical treatment actually increases the degree of gastric obstruction. Any of the sequelae and complications of ordinary peptic ulcer may occur in syphilitic ulcer. Perforations have been reported by Fraenkel<sup>15</sup> and by Flexner.<sup>16</sup> Graham<sup>10</sup> has found that the most common indications for operation in syphilis of the stomach are stenosis of the pylorus, hour-glass formation, and perigastric adhesions.

During the past few months we have had the opportunity of observing two cases sent into the Barnard Free Skin and Cancer Hospital by other physicians with a provisional diagnosis of carcinoma of the stomach. Both of these patients fulfilled the clinical criteria demanded by Chase<sup>17</sup> in the diagnosis of syphilis of the stomach,—positive Wassermann reaction, or evidence of syphilis elsewhere in the body, demonstration of a lesion in the stomach

by the roentgen ray and definite, sustained, therapeutic improvement. The following is a brief clinical summary of the important findings in these two cases:

#### CASE 1. ULCERATIVE TYPE

R. P., a white man aged 53 years, employed as a paper cleaner, came into the clinic of the Barnard Free Skin and Cancer Hospital in August, 1929, complaining of attacks of epigastric pain, nausea and vomiting of about two years' duration. The pain characteristically would come at about one-half hour after meals, and was described by the patient as being very severe and burning in character. Alkalies gave inconstant relief. The patient preferred to drink warm water during an attack of pain, the induced vomiting affording some alleviation. Various dietary restrictions, some of them self-imposed by previous experience, some dictated by a neighborhood physician, were tried without success. In general, the diet prescribed followed the orthodox "ulcer regime." It is interesting to note that there were short periods, not related to seasonal variation, when the patient was relatively symptom free. Then an attack of pain and vomiting would occur without warning, although the patient quite naturally attributed each paroxysm of epigastric discomfort to some preceding dietary indiscretion. There had never been hematemesis or melena. During the few weeks preceding his admission to the clinic, attacks of postprandial pain were daily occurrences. The appetite remained good although the patient ate little to spare himself the distress which came with a full stomach. The patient was thirty pounds under his best weight, the last fifteen having been lost in the six weeks preceding his examination.

A systemic past history disclosed the fact that several years previously the patient had taken four injections of a "blood tonic," although specific questions with regard to a possible luetic infection were met with indignant denials of an injured pride. The wife had had no miscarriages. There had been no attacks of jaundice.

Physical examination showed a chronically ill man, who appeared older than his stated age, and who showed evidence of severe loss of weight. The mucous membranes were pale, the pupils equal and reactive to light and to accommodation. The teeth had all been removed excepting three central incisors; this sacrifice was made on the advice of a physician who told him that "rotten teeth were responsible for his indigestion." The chest was thin and wasted; on percussion fibrillary twitching of the muscle fibers, and myo-edema were noted. The percussion note was impaired over both apices, and the breath sounds intensified but no rales were heard. Heart was considered normal. Blood pressure 108/70. Abdomen was scaphoid, showed rather localized tenderness in the epigastrium, but no masses could be palpated. The entire musculature of the abdomen seemed spastic. The reflexes were sound.

The blood Kahn and Wassermann were found to be +++. Urinalysis was negative. Gastric analysis showed a free hydrochloric acid content of 28°, and a total acidity of 47°. There was no blood or lactic acid in the gastric contents. The stool examination was normal. Spinal fluid Wassermann and Kahn were negative. The X-ray studies which were done by Dr. Edwin C. Ernst were reported as follows (see Fig. 1):

"August 14, 1929. *Stomach*.—Normal position, size, shape and general outline. The lesser curva-





Fig. 1. Stomach of Patient R. P. on initial examination August, 1929. Note unusually high penetrating defect indicative of ulcer along lesser curvature margin of stomach near the cardia. On fluoroscopic examination the pylorus was found extremely spastic, but there was a normal gastric emptying time. Duodenum is quite normal.

ture margin of the fundus of the stomach near the cardia indicates a penetrating defect indicative of an ulcer. This defect is not suggestive or characteristic of cancer but the walls of this ulceration could be an early cancer infiltration surrounding the ulcer. Hyperperistalsis. Reasonably normal gastric emptying time at five hours. Extremely spastic pylorus. The findings in this latter region do not especially indicate an organic intrinsic lesion, but the slight narrowing is most suggestive of spasticity. The duodenum is normal as to size, shape and outline, and does not show evidence of an intrinsic lesion. Small intestines: normal small bowel distribution. Large intestines: at five hours the head of the column of barium reached the splenic flexure. This slight variation might be considered a mild degree of hypermotility. The cecum appeared to be fixed and there was evidence of a tender point, apparently retrocecal. At twenty-four hours the entire colon was clear of the barium with the exception of the cecum, ascending and right transverse colon. The cecum was again found to be definitely fixed. The appendiceal lumen could not be visualized, but tenderness remained over the inferior ascending colon area. The colon enema examination did not show evidence of an intrinsic filling defect simulating ulcer or tumor pathology. But again we were able to elicit tenderness over the lower right quadrant as described. *Summary:* (1) Unusually high penetrating ulcer along the lesser curvature margin of the fundus of the stomach near the cardia. The crater of this ulcer measures approximately one centimeter in diameter. (2) Chronic appendiceal pathology, probably retrocecal."

It was thought that the most probable diagnosis was a large gastric ulcer, or early malignancy, but it was decided that the patient should be given the benefit of antisyphilitic therapy before operation. Injections of 1 cc. of 1 per cent bichloride of mercury were given intramuscularly three times a week for a series of twenty treatments, during which course the patient received two intravenous neosalvarsans. Potassium iodide was prescribed by mouth. Even on this mild regime the improvement in all the gastric symptoms was so marked within

the first month that the patient returned to work, abandoned his ulcer diet and started drinking whiskey of an inferior quality to drown his domestic sorrow, as well as to test the integrity of his healing stomach. This organ passed the test and he quit coming to the clinic. Through the persistent and commendatory effort of Miss Healy, of the Social Service Department, the patient was persuaded, after two months absence, to enter the hospital where he could be constantly under observation and a roentgenological check-up could be made.

The patient on admission to the hospital looked like a different man. He had gained back 18 pounds of weight. He took a regular hospital tray without discomfort. Antiluetic therapy, as outlined above, was again instituted and on January 8, 1930, Dr. Ernst reported as follows on the gastro-intestinal examination (see Fig. 2):

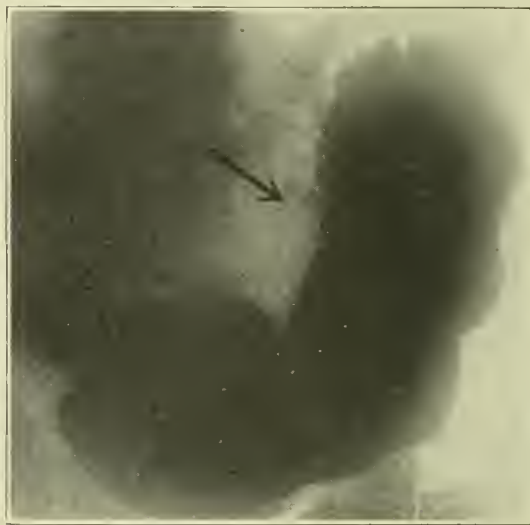


Fig. 2. Stomach of same patient (R. P.) on reexamination January, 1930, after a period of antisyphilitic treatment. There is almost complete disappearance of original ulcer on lesser curvature. This marked change was confirmed on subsequent examinations. The unusual molding effect of the lesser curvature was interpreted by Dr. Ernst as being due to a probable slight thickening of the wall of the stomach during the course of healing under therapy.

"January 8, 1930. The X-ray study of the gastro-intestinal tract now does not show any evidence of the lesser curvature penetrating ulcer or tumor near the cardia. The lesser curvature does continue to show an unusual molding effect which we interpreted as being due to a probable slight thickening of the lesser curvature wall of the stomach. *We can hardly believe our eyes*, and would suggest that perhaps a reexamination of the stomach might be indicated at extreme angles."

One week later, a reexamination confirmed these remarkable findings:

"January 15, 1930. The X-ray study of the lung structure indicates moderately pronounced chronic inflammatory thickening changes, but no X-ray evidence of malignancy or active tuberculosis. The cardiac transverse diameters are increased, and this is likewise true of the dilated aortic diameter. We do not, however, find evidence of a definite localized aneurysmal sacculaton. The reexamination of the lesser curvature of the stomach corroborates our previous studies in that the formerly apparent lesser curvature ulcer at the present time does not show evidence of any progressive changes. In fact, there is almost a complete disappearance of the original ulcer."

The patient finished a second course of anti-syphilitic treatment, during which time his gain in weight continued and he remained entirely symptom free. At his request he was then transferred to an evening municipal clinic for further therapy, so that he would not have to lose time from his work. The Kahn reaction on the blood serum at the time of his discharge was still two plus.

*Comment:* In this case there was a suspicious history of syphilis, and a positive Wassermann and Kahn reaction. The immediate and remarkable response to a rather mild anti-syphilitic therapeutic regime, with the disappearance of symptoms which had resisted other measures for two years, and the permanent erasure of a marked roentgenological defect, seem sufficient to establish this case as one of gastric syphilis. Unusual features were the location of the lesion, and the normal hydrochloric acid content.

#### CASE 2. OBSTRUCTIVE TYPE

C. S., a white man, 26 years of age, unemployed, was admitted to the Barnard Free Skin and Cancer Hospital in August, 1929, with a chief complaint of epigastric distress of four years' duration. Aside from influenza in 1918, the past history was unimportant. Venereal infection was casually denied. In fact, the patient insisted that he had had two normal blood tests within the past year. On investigation, it was found that one of these tests was a blood count done in another clinic in the city, and the other was a blood pressure determination during the course of an insurance examination. His wife's only pregnancy had resulted in a miscarriage at three months' gestation.

The present illness began insidiously some four years before with a sense of fullness and discomfort after meals. There followed periods of severe "aching pains" in the stomach, at first relieved by food, and later helped by nothing except vomiting. There was no constant relationship to meals although the usual onset of the pain was within an hour after the intake of food. Nausea and vomiting became extreme; at times water could not be tolerated. Blood was never noted in the vomitus or stools. There had been no attacks of jaundice. Ulcer diets, alkalies and rest under the direction of a family physician, were of no avail. The patient lost forty pounds of weight in the two years preceding his admission to the hospital.

Physical findings included: evidence of extreme loss of weight; reactive pupils; normal reflexes. The heart and lungs were normal. There was a tattoo mark on the right arm (a blemish emphasized by Dock as frequently associated with luetic infection). Epigastric tenderness was marked but no mass could be palpated.

Laboratory data: Blood, Wassermann and Kahn were ++++. Blood count and urinalysis normal. No blood in the vomitus or stool. Gastric analysis showed no occult blood or lactic acid, a hydrochloric acid content of 15° fasting, with a total acidity of 35°. The spinal fluid Wassermann and Kahn were negative. The fluoroscopic examination of the chest was normal. The gastro-intestinal X-ray studies of Dr. Edwin C. Ernst were reported as follows (see Figs. 3 and 4):

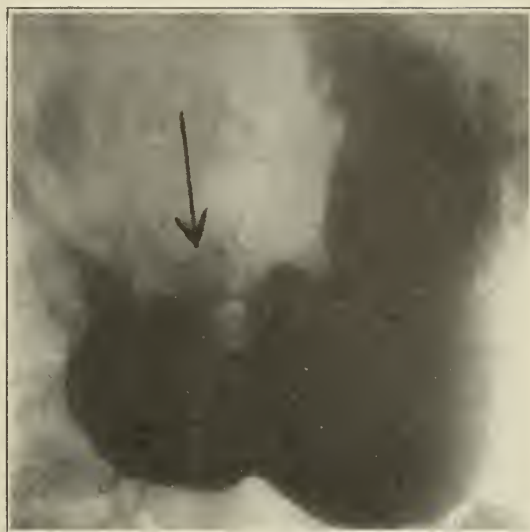


Fig. 3. Stomach of patient C. S. on initial examination August 12, 1929. The margins of the pylorus show filling defects indicative of tumor pathology, at first thought to be malignant. On fluoroscopic examination, Dr. Ernst was unable to visualize clearly the cardiac portion of the stomach or the duodenal cap. There was mildly active gastric peristalsis.



Fig. 4. Patient C. S., Aug. 12, 1929. There is definite evidence of beginning obstruction, as shown by the 25 per cent gastric residue at the end of five hours.

"August 12, 1929. *Stomach:* Normal size, shape and general outline. The margins of the pylorus show filling defects indicative of tumor pathology, which in all probability are malignant. There was definite evidence of beginning obstruction, as evidenced by the 25 per cent gastric residue at the end of four and one-half hours. Mildly active gastric peristalsis. We were never able to visualize the



duodenal cap. We were unable clearly to visualize the cardiac portion of the stomach. We were anxious for the patient to take an additional amount of barium so as to outline the gastric walls, and exclude a possible posterior wall lesion in the cardiac end of the stomach. *Small intestines:* No unusual small bowel distribution. *Five hour examination:* Twenty per cent gastric residue; the greater portion of the opaque meal could be visualized in the small intestines, but this observation is no doubt due to the pyloric obstruction. *Large intestines:* At 24 hours the entire colon was filled with the opaque meal. The colon enema examination did not indicate abnormal X-ray findings except a dilated ampulla, and also a moderately large cecum and ascending colon. We did not, however, find evidence of intrinsic pathology. *Summary:* Pyloric filling defects indicative of tumor pathology (malignant). The pyloric lumen shows evidence of beginning obstruction."

The patient continued to suffer from severe epigastric pain while undergoing the above examinations. He vomited after each meal, although he was on a highly restricted ulcer diet. Usual medicinals were futile. He begged for an operation that would afford him immediate relief. His condition was explained to him, however, and he was advised to have intensive antisyphilitic therapy before the operation was considered.

Intramuscular injections of 1 cc. of 1 per cent bichloride of mercury were instituted, with intravenous treatments of 0.6 gram of neosalvarsan every fifth day. Clinical improvement was dramatic. Within one week the symptoms of obstructive vomiting had subsided to such a degree that the diet could be considerably increased. Soon after that the pain disappeared entirely and vomiting became a thing of the past. Within three weeks the patient was on a regular high caloric hospital tray and suffering no discomfort. After eight injections of neosalvarsan there were some warning complaints of tingling in the extremities and arsenicals were temporarily discontinued. Intramuscular mercury injections were kept up, however, as well as potassium iodide by mouth.

On October 2, 1930, a reexamination of the stomach was reported as follows:

"The reexamination of the stomach at this time does not indicate any marked change in the previously described filling defect near the pylorus. Fluoroscopically, there seemed to be a definite improvement, although radiographically the changes present, if any, are extremely slight. However, it is noteworthy to observe that the pyloric obstruction or five hour gastric residue is less pronounced at this time. This finding is, of course, a most favorable observation, and perhaps slightly favors a luetic infection; nevertheless we still feel that carcinoma must always be given due consideration."

Two months later, Dr. Ernst made a third gastro-intestinal study (see Fig. 5):

"January 8, 1930. The present gastro-intestinal study of the original filling defect in the region of the pylorus, indicates definite favorable findings at this time, namely, (a) slight decrease in the filling defect deformity, originally observed; (b) no X-ray evidence of gastric stasis at this time."

During the first six months of rather intensive antisyphilitic treatment the patient regained the forty pounds which he had lost in the previous four years. His improvement has been so remarkable that he might be considered a clinical cure, although the last Wassermann report was still positive.

*Comment.*—The long duration of gastric symptoms of an obstructive type without ex-

treme emaciation, the youth of this patient, the suggestive history and the laboratory evidence of syphilis, the complete restoration of gastric



Fig. 5. Reexamination of stomach of patient C. S., October, 1930, after a period of antisyphilitic therapy. There is only a slight decrease in the filling defect deformity of the pylorus originally observed. Fluoroscopically, there seemed to be definite improvement. There was no X-ray evidence of stasis at this time. No five-hour gastric residue.

function under specific therapy, all support the diagnosis of syphilis of the stomach. The persistence of the X-ray deformity is probably due to the replacement of the initial lesion with scar tissue during the course of healing.

#### SUMMARY

1. Two cases of syphilis of the stomach are reported: One of the ulcerative, the other of the obstructive type. Both responded remarkably to specific treatment with complete disappearance of a prominent X-ray defect in the first instance and relief of the obstruction in the second.

2. The clinical features of this condition as discussed in the literature are briefly reviewed.

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## SYPHILITIC REINFECTION IN A FEMALE PATIENT

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Since it is generally accepted by clinicians that an active immunity exists so long as the patient has the disease, cases of proved infection are always of interest as furnishing final evidence of the curability of syphilis.

A discussion of the problem of recurrence ("chancre redux"), superinfection rather than second infection, and the basic immunological principles involved, is not necessary here. The experimental data which Brown and Pearce,<sup>1</sup> Chesney and Kemp,<sup>2</sup> Kolle<sup>3</sup> and others, have accumulated in both men and animals should convince the most skeptical that the resistant state in the host may be lost after sufficient antisyphilitic treatment (synonymous with cure), and that reinoculation on exposure to infection is then possible.<sup>4</sup>

Clinically, Halley and Wassermann<sup>5</sup> have adopted two criteria of authentic reinfection with syphilis: (1) There must be positive proof that the patient had syphilis prior to the occurrence of the suspected syphilitic infection,—either a positive dark field examination for spirochetes, or a positive Wassermann reaction in the blood serum. (2) After an interval following antisyphilitic treatment and at a site other than that of the primary lesion of the first infection, there must develop a lesion with the characteristics of a chancre in which spirochetes can be demonstrated. The same authors have made a statistical study of the cases reported in the literature since the introduction of modern antisyphilitic therapy (1910); 229 cases were acceptable in the light of their critical survey, and to this number they added eight cases observed in the syphilis clinic of Johns Hopkins Hospital.

It is important to note that the overwhelming majority (98 per cent) of the patients in this series applied for treatment early in the course of their first infection, that is, during the primary or secondary stage. This is in keeping with the common experience that clinical cures, judged by total disappearance of lesions, permanent Wassermann reversals,

healthy progeny, etc., are to be expected in the intensively treated cases of early syphilis.

There was not a single undoubted instance of a second infection in a patient in whom syphilis of the central nervous system or cardiovascular system, had been previously diagnosed. Only four instances (1.6 per cent) of reinfection were found in patients who had had syphilis in a latent form at the time that they were first treated for the disease. One case of reinfection was discovered in a treated congenital syphilitic patient.

The infrequency of syphilitic infection in women is recognized by all authors. In the entire group of 237 cases which met the criteria of Halley and Wassermann there were only eight instances (3.3 per cent) of second infection in female patients. Granted that the disease is more common in the more vigorous and promiscuous sex, still the disproportion should not be so preponderant. The most probable explanation is to be found in the fact that syphilis runs a relatively benign and silent course in most women, who therefore apply to the clinic for treatment, as a rule, after the infection has become latent and resistant to treatment. The great majority of women who are admitted to our outpatient department for antisyphilitic treatment come because a positive Wassermann has been discovered in the general examination elsewhere, or because there is a known infection in the husband. Rarely do women show the classic signs of early syphilis. It must be admitted, also, that in many clinics careful vaginal examinations are infrequently made, and it is possible that a certain number of real cases of second infection in women have thus been missed.

Because of the accepted extreme rarity of reinfection in women and because of the fact that each additional proved case of second infection should serve to dispel from the mind of the clinician the time honored, hopeless and utterly false legend of "once a syphilitic, always a syphilitic," we wish to record the following case:

### REPORT OF CASE

R. B., a colored chambermaid, born in 1906, was first treated in our outpatient department in 1924 for an acute gonococcus salpingitis which subsided under conservative measures. The Wassermann reaction on the first visit was negative. The patient did not return to the clinic for about one year. Then in July, 1925, she appeared with a typical Hunterian chancre on the vulva which gave a positive dark field examination. A faint secondary eruption was beginning to show on the body and the patient complained of cephalalgia. The Wassermann was ++++ in both antigens. The patient's husband was under treatment in our clinic at the time and was thought to be the source of infection.

The patient was immediately put on treatment,



consisting of a series of 20 bichloride of mercury intramuscular injections during which course there were four intravenous administrations of 0.5 gram each of old arsphenamine. At the end of the first course the Wassermann was negative. After a very brief period of rest another course was given including one injection of 0.5 gram of arsphenamine. The Wassermann at the completion of this series was also negative. The patient was allowed another month of rest, and then returned for a few irregular visits when she received bichloride of mercury injections. About this time, she was feeling so well that she thought further treatment was a nuisance and, with a change of address that made social service follow-up impossible, the girl was lost to view. Her record was filed away as incomplete in May, 1926.

Three years later (April, 1929) the patient showed up voluntarily at our syphilitic clinic. She said that she had been entirely well in the interval between her last visit and the onset of her present illness. She and her husband had been separated, and she was afraid that she was paying the penalty of promiscuity for she "had another sore on her privates that had been there for six weeks, and now her skin was all broke out." It was, indeed,—an angry secondary papular eruption that covered the body. Her temperature was 100°F. There were mucous patches in the throat. A mild general adenopathy was noted. There was a profuse vaginal discharge in which intracellular diplococci were found in great numbers. The patient felt thoroughly miserable.

On the upper portion of the vulva, a typical primary syphilitic lesion was discovered in which treponemata were found on dark field examination. The blood Wassermann and Kahn were both four plus.

The patient was again put on intensive treatment of the type she had previously received. The syphilitic rash disappeared, the chancre resolved, and the general malaise was promptly relieved. This time she has been faithful in her attendance at the clinic and is now on her fourth course. The last Kahn reaction was reported two plus.

#### SUMMARY

1. Syphilitic reinfection does occur, and is generally accepted as proof of the curability of the disease.

2. A case report is presented briefly of a young colored woman who suffered a second infection with syphilis.

Halley and Wassermann were able to find in the literature up to 1928, only eight previous instances of reinfection in this sex which met their rigid criteria.

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#### THE INFLUENZA DISCOVERY

With little if any apparent warrant, it is again announced, for at least the tenth time in five years, that the causative organism of influenza has been discovered and that it is hoped to prepare a vaccine. There is thus far little or no evidence in scientific medical literature, or even in spoken addresses, to indicate that I. S. Falk, Ph.D., and his associates have progressed any further toward the solution of this problem than have workers in other parts of the world, now or in the past. Even the staid *New York Times* succeeded in confusing antitoxins, vaccines and similar scientific terms in a manner that can be explained only by the undue haste with which the announcement was rushed to the audience. The furor is inexcusable.—*Jour. A. M. A.*, Dec. 21, 1929.

#### THE CHILD WITH POTENTIAL HEART DISEASE

C. G. Kerley, New York (*Journal A. M. A.*, Feb. 16, 1929), stresses the fact that there is a type of child that is particularly susceptible to the infecting agencies that cause heart disease. Such a child possesses what is termed a favorable soil and may be recognized and belongs to one of three groups: Those who have or who have had rheumatic fever; those who have or who have had chorea; those who complain repeatedly of pain in the extremities which may not be accounted for by trauma or disease. A particularly susceptible child may be classified as belonging to the three groups. Heart disease in children so afflicted may be prevented in many by the eradication of diseased foci, first with a persistent and later with an interrupted use of salicylic acid alone or combined with an alkali. When physicians appreciate the dormant possibilities behind the "growing pains," heart disease will be appreciably lessened.

#### HYGEIA EXPLAINS HOLLYWOOD DIET

One might have thought that the volumes and reams of paper expended in overcoming the last craze for slenderness would have worked a permanent cure and that femininity would no longer be tempted by strange combinations of lamb chops with pineapple, lettuce and hardboiled egg, or other arrangements guaranteed to cause the aroidupois to melt from the shanks like the glacier snows from the timber line of Mt. Hood in August, observes the editor of *Hygeia*, the health magazine, in an editorial in the September issue anent the eighteen day diet that has recently agitated the ranks of those interested in reducing weight.

Although it is freely asserted that the list is the result of five years of cogitation on the part of leading French and American physicians, it can be taken for granted because of the emphasis on grapefruit and oranges, that the eighteen day diet, also known as the Hollywood diet, emanated from California.

The diet provides from 500 to 800 calories per day, some days approximating almost a thousand. Most persons normally eat about 3,000 calories a day. On such a diet one is bound to lose weight too rapidly. Authorities insist that a loss of more than 2 pounds per week is not healthful. The right way to lose weight is to take a diet which does not provide more than 1,400 calories per day and which contains the proper foods to supply proteins, carbohydrates, fats, mineral salts and all the vitamins.

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JUNE, 1930

## EDITORIALS

### THE HANNIBAL SESSION

The Hannibal Session of the Association was a very profitable as well as enjoyable meeting for the members who attended. Although the registration was small, there being only 291 in attendance, the quality of the papers on the scientific program was generally commended and the work of the House of Delegates was interesting and progressive.

The proposition to reduce the amount of annual dues broadcast by the Cole County Medical Society previous to the meeting was not brought up for action. The delegate from Cole County was not present and no other delegate offered an amendment to reduce the dues. President Cotton mentioned this subject in his message and recommendation to the House of Delegates and strongly advised against any reduction. He called attention to the amount of dues in other states whose membership numerically was about the same as in Missouri or less and having dues of \$10 or \$12 per annum. The general sentiment among the members was decidedly opposed to any reduction.

President Cotton directed the attention of the House of Delegates to the dual function of our State Board of Health as a body to protect the health of the people and as a board of examiners of applicants for license to practice medicine. Missouri, he said, is one of only eight states with this dual function, all the other states and dependencies having a separate board for the licensing of applicants to practice. He made no recommendation on the subject but asked if it were wise to continue this dual function. He also suggested that all appointments to the board of health should be based upon merit only and not upon political affiliation.

The work of the Postgraduate Committee was commended by President Cotton as one of the most important phases of the Association's activities. He urged upon the county societies

a more general acceptance of the Postgraduate Committee's assistance and suggested that neighboring counties arrange to have one meeting at a central point so that an audience from 50 to 100 could be provided for the speakers.

The plan to reestablish a four-year course in medicine at Columbia, President Cotton said, should not be abandoned by our Association but the efforts continued until Missouri had made provision for giving her sons and daughters who desire to study medicine the opportunity to obtain this training in our own university.

The plan to establish a Widow's Fund under the auspices of the Association but administered as an independent organization, as proposed by Dr. Frank I. Ridge, Kansas City, at the Springfield Session, was endorsed and rules and regulations governing the operation of the Fund were adopted.

Dr. C. H. Neilson, St. Louis, chairman of the Committee on Postgraduate Work, made a strong appeal to the societies to call upon the committee more frequently than they had done in the past. He emphasized President Cotton's suggestion that several counties combine to meet at a central point and thus provide an audience of sufficient numbers to make the trip an interesting and stimulating one for the speakers. Our members, he said, are more than willing to give their time and service to the Association in this way but it is not fair to them if they find only four or five in attendance at a meeting after traveling 200 miles to present the fruits of their experience to their fellow members. Last year 56 speakers were sent to 37 meetings in 14 counties. Dr. Neilson is anxious to have these figures greatly increased before the 1931 meeting convenes at Joplin.

Several amendments to the Constitution and By-Laws were proposed and some adopted. Those not adopted were amendments to the Constitution which must lie over for one year. They will come up for action at the 1931 session. The most important amendment adopted increased the amount of financial assistance which the Association will extend toward members who are sued for malpractice, from \$100 to \$300.

An amendment to the Constitution which will be acted upon next year provides for three vice presidents of the Association whose duties it will be to assist the president in the discharge of his duties and one of whom, to be selected by the Council, would succeed to the presidency in case of the death, resignation, or removal of the president.

Dr. Frank G. Nifong, Columbia, informed the House of the proposition being formulated



to establish a memorial for Dr. Andrew Walker McAlester, for many years one of the leaders in our organization, dean in the medical department of the University of Missouri, organizer of the health department of the State of Missouri, and an advocate of high medical standards. This movement originated with the Association of Medical Students of the University of Missouri who have asked that the Missouri State Medical Association appoint two of its members to serve with five others as the administrative committee of the Andrew Walker McAlester Memorial Foundation. One member is to be chosen by the faculty of the School of Medicine of the State University, one to be chosen by the University of Missouri Medical School Association, one by the faculty of the veterinary department of the University of Missouri, two to be chosen by the Missouri State Medical Association, and two nonmedical members to be chosen from among contributors to the Memorial Foundation.

The proposition was adopted by the House of Delegates and the President was requested to select two members to serve on the administrative committee. President Cotton appointed Drs. A. R. McComas, Surgeon, and Frank G. Nifong, Columbia, to represent the Missouri State Medical Association.

The election of officers resulted in the unanimous selection of Dr. John Frank Harrison, Mexico, for president-elect. Dr. G. W. Hawkins, Salisbury, was reelected treasurer, and Dr. E. J. Goodwin, St. Louis, was reelected secretary-editor. Dr. A. R. McComas, Surgeon, was reelected chairman of the Council; Dr. W. H. Breuer, St. James, vice chairman, and Dr. E. J. Goodwin, St. Louis, secretary. The Executive Committee of the Council was reelected, viz.: Dr. A. R. McComas, Surgeon, chairman; Dr. W. H. Breuer, St. James, and Dr. Ralph L. Thompson, St. Louis. For delegates to the American Medical Association, Dr. Jabez N. Jackson, Kansas City, was elected, with Dr. G. Wilse Robinson, Kansas City, alternate. Dr. A. R. McComas, Surgeon, was reelected delegate with Dr. H. L. Kerr, Crane, alternate. Dr. S. L. Baysinger, Rolla, was reelected delegate with Dr. A. H. Marshall, Charleston, alternate. The councilors whose terms expired were all reelected, except the councilor for the twenty-fifth district to which Dr. W. W. Johnston, Farmington, was elected to fill the vacancy caused by the death of Dr. R. W. Gay, Ironton.

Joplin was selected as the place of meeting for the 1931 session.

Members were well entertained and the committee on arrangements, under the chairmanship of Dr. Howard B. Goodrich, made all details of the convention run smoothly.

A stag banquet at the Country Club, a golf tournament, a dinner meeting of county society secretaries, and a Missouri University Alumni luncheon were among the entertainment features.

The dinner for the county society secretaries was a very enjoyable event. Dr. William Gerry Morgan, Washington, D. C., President-Elect of the American Medical Association, and our own Dr. T. W. Cotton, Van Buren, President of our Association, together with the incoming president, Dr. W. C. Gayler, St. Louis, were present and made the secretaries' meeting one long to be remembered by their encouraging talks. Dr. C. D. Humbert, Barnard, vice president, presided in the absence of the president, Dr. J. M. Singleton, Kansas City. The new officers elected are: President, Dr. C. D. Humbert, Barnard; vice president, Dr. Howard B. Goodrich, Hannibal; secretary, Dr. J. T. Hornback, Nevada, reelected.

#### MISSOURI CORONERS ORGANIZE

In characterizing the laws of Missouri which deal with coroners as not only antiquated but medieval, P. J. Zisch, Milwaukee, Wisconsin, substantiated the general opinion of these laws in Missouri. Measures for changing these have been promoted but have been unsuccessful. The Missouri Association for Criminal Justice in cooperation with the Missouri State Medical Association introduced such a measure at the last meeting of the Legislature but it failed of adoption.

Continuing that interest in making the coroner's office a modern institution, the coroners of Missouri have formed an organization called the Missouri State Coroners' Association with coroners from 94 counties as members. The first meeting was held in St. Louis, April 22.

Mr. P. J. Zisch, president of the National Association of Coroners, conducted the meeting until the Missouri Association was organized. Mr. Zisch pointed out that the principal objection to the present laws is that in many instances qualified men will not seek the office because they know it is operated as an incident to the business of the county court. Hardly less reprehensible, he pointed out, is the provision which requires the coroner to obtain his fee from the estate of the dead person, if the person came to death in a violent manner, thus encouraging verdicts of violent death if they expect to get a fee.

Approval was made of the proposal to create an office of state pathologist and toxicologist.

Mr. Zisch, who was formerly chief deputy coroner in Chicago, praised the new morgue in St. Louis highly saying that he had visited

every morgue of any size in the country and had found none to compare with that of St. Louis.

The association plans to work for a state statute prohibiting cremation except after a coroner's certificate has been given, thus stopping destruction of evidence.

Mr. Zisch praised physicians in St. Louis for their civic spirit, which in his opinion is the principal reason autopsies were obtainable. He pointed out that the fee is \$50 practically everywhere and in many places is \$75, while in St. Louis it is \$10.

Officers elected by the Missouri State Coroners' Association are: Mr. Wm. V. Dever, coroner of St. Louis, president; Dr. Murray C. Stone, Springfield, coroner of Greene County, secretary and treasurer. Dr. R. B. H. Gradwohl, pathologist at the St. Louis morgue, was designated to provide state coroners with expert advice on questions of pathology and toxicology.

#### CORRECTION

In an article telling of the appointment of Dr. Thomas Parran, Jr., as health commissioner of the State of New York appearing in the May issue of *THE JOURNAL*, it was stated that Dr. Parran succeeded Dr. Shirley W. Wynne. Dr. Parran succeeded Dr. Matthias Nicoll, resigned. Dr. Wynne is health commissioner of New York City.

#### NEWS NOTES

Dr. Edwin J. Schisler, St. Louis, addressed the staff of the St. Charles Hospital, St. Charles, April 17, on "Heart Disease and Blood Pressure."

Dr. Bransford Lewis, St. Louis, was the guest of the Pittsburgh Urological Society, at Pittsburgh, Pa., May 12, and read a paper on "The Movable Kidney."

Dr. Carl Barck, St. Louis, will be one of the hundred speakers at the Congress of Notable Badensians to be held at Karlsruhe, Germany, July 11 to 14. The congress will be part of the "Homecoming Week" of the province to which former citizens of the community throughout the world have been invited. Among other speakers at the congress are Dr. Carl Becker, former secretary of the department of education of Prussia; Dr. Jacob Bleyer, professor of Budapest University; Dr. Edward Braun, director of the Museum of Art History in Vienna; and Dr. Joseph Wirth, secretary of the Interior of Germany. Dr. Barck will attend a conclave of German oculists at Heidelberg while he is in Germany.

Dr. Joseph Erlanger, professor of physiology in Washington University School of Medicine, St. Louis, will deliver the Hitchcock lectures at the University of California, beginning April 21. The lectures will deal with the general subject, "The Analysis of the Electrical Manifestations of Nerve Action."

In connection with studies relating to pellagra and preventive properties of various food substances, the United States Public Health Service has recently announced that canned salmon contains the pellagra preventive factor, and therefore may be considered a fair substitute for meat in the area of pellagra endemicity.

A motion picture demonstration of "Spinal Anesthesia; Volume Control Technic" was presented at the meeting of the St. Louis Medical Society, April 29, by Dr. Richard B. Stout, Madison, Wisconsin. Dr. Stout is in charge of the department of anesthesia at the Jackson Clinic and has done a large amount of investigative work in spinal anesthetics.

Sporting goods advertising is to be stripped of unethical statements and the "indorsement racket" is to end, according to a code of trade practice ethics adopted by representatives of 90 per cent of the sporting goods manufacturers at a trade practice conference in White Sulphur Springs, West Virginia, early in May. According to the code adopted, manufacturers must disclose the obligation existing between the athlete and the manufacturer for the athlete's indorsement of the product. The resolution will become effective when approved by the Federal Trade Commission.

An institution for chronic invalids is provided for in the will of Mrs. Blanche Bordley, widow of Daniel C. Bordley, formerly a director of the Liggett & Myers Tobacco Co. An amount of \$435,000 is set aside for the institution which will be known as the Dan and Blanche Bordley Memorial for Chronic Invalids. Not more than one-half the principal is to be used in the construction or acquiring of a building. Provision is made for the free treatment and care of "deserving people irrespective of nationality or religious affiliation." An organization already established is to act as trustee of the fund, Mrs. Bordley suggesting either the Sisters of St. Mary, St. Louis, or St. Louis University, or if possible, both organizations. In the will Mrs. Bordley says, "It is my desire to establish facilities for the care of that class of persons known as chronic invalids who do not respond to ordinary hospital treatment, and are designated by physicians as incurable, but not including those afflicted with tuberculosis."



Fifty-eight patients in the hospital at the State Federal Soldiers' Home of Missouri, St. James, most of them unable to walk, were rescued without injury when the building burned April 13. The loss to the institution is estimated at \$100,000. Dr. W. H. Breuer, house surgeon of the hospital, secured accommodation for the patients in temporary quarters in other buildings on the grounds.

Dr. Charles Armstrong, of the United States Public Health Service, a survivor of one attack of psittacosis, plans to expose himself a second time to the disease. He hopes to learn whether a person having once recovered from an attack is susceptible and in what degree, how psittacosis is transmitted, what birds are susceptible, and whether use of a serum is effective. The experiment will be conducted at Baltimore.

Dr. John R. Brinkley, Milford, Kansas, so-called "goat-gland" specialist, has been served with a writ directing him to show cause why his license to practice medicine should not be revoked. He is ordered to appear before the State Board of Medical Registration and Examination of Kansas, June 17. The accusations include gross immorality and unprofessional conduct. The complaint was filed by Dr. L. F. Barney, Kansas City, Kansas, retiring president of the Kansas Medical Society. With characteristic effrontery, Dr. Brinkley tried to defeat the action of the board by an injunction on the ground that the law which empowered the board to revoke his license was unconstitutional. Judge George H. Whitcomb granted a hearing on the application for an injunction on May 16. After the hearing Judge Whitcomb denied the petition for a permanent injunction.

Dr. Lewis A. Conner, New York, professor of medicine, Cornell University Medical College, spoke before the St. Louis Medical Society, May 20. He is one of the founders and first president of the American Heart Association, and editor of the *American Heart Journal*. Dr. Conner compared the present-day methods of diagnosis with the methods employed before the development of laboratory technique, when the physician depended principally on clinical observation of the patient's symptoms, physical signs of disease and the history. He urged physicians not to abandon clinical methods, both because laboratory methods are sometimes fallible and because clinical study is frequently intrinsically more illuminating. His subject was "The Place of Laboratory Aids in the Practice of Medicine and Surgery."

Ancient feeding spoons, jugs, boats and nursing bottles, some of which date back to 500 B. C., and gathered from all parts of the world, will be a feature of the exhibit of Mead Johnson & Company, Evansville, Indiana, at the Detroit session of the American Medical Association. Mead Johnson & Company will combine modern infant diet materials with this historical collection which will be shown through the courtesy of Dr. T. G. H. Drake, of the University of Toronto.

Dr. W. McKim Marriott, St. Louis, dean of Washington University School of Medicine; Dr. August A. Werner, St. Louis; Dr. L. H. Jorstad, Barnard Free Skin and Cancer Hospital, St. Louis; Dr. Virgil Loeb, St. Louis; and Dr. C. F. Sherwin, St. Louis, were among speakers at the sixty-fifth annual convention of the Missouri State Dental Association which met in St. Louis, May 19 to 22. Dr. Marriott classed diet and cleanliness equal in importance in a talk on "Diet and the Teeth." Dr. Werner spoke on "The Ductless Glands in Relation to Osseous Growth and Development with Special Reference to the Teeth." Cancer was discussed and films showing various stages were presented by Dr. Jorstad. Dr. Loeb spoke on "Oral Hygiene," and Dr. Sherwin gave a scientific exhibit, illustrated by natural color slides, of "Oral Diagnosis and Diseases of the Mouth."

The fifteenth annual report of the National Society for the Prevention of Blindness which was issued recently tells of many accomplishments of the society. The work has largely been divided into preventing eye troubles in babies, caring for the eyes of preschool children, conserving the sight of school children, research and demonstration projects, public education, cooperation with other agencies, and financial support. Educational pamphlets on ophthalmia neonatorum have been widely distributed during the year and 92 communities in 12 states were given demonstrations and general talks on preschool eye testing. Courses for teachers in sight-saving were given during the summer of 1929 in the University of Southern California, University of Cincinnati, Columbia University and the University of Chicago. There are now 350 sight-saving classes in the United States. The society co-operated with the federal trachoma clinic at Rolla, Mo., and assisted several agencies in a study of the incidence of trachoma among the Chippewa Indians of Minnesota. The society has cooperated in sight conservation work with health, educational, welfare, and industrial organizations during the year.

The Tuberculosis Ball Game, held each year in St. Louis by the Tuberculosis and Health Society, will be June 24. The Cardinals will play Boston at Sportsman's Park and other features of entertainment will include a push ball contest, drills, and gymnastics. Tickets are on sale through the Tuberculosis and Health Society offices, 613 Locust Street.

Dr. Esmond R. Long, professor of pathology at the University of Chicago, spoke at the May 6 meeting of the St. Louis Medical Society. The program was given under the auspices of the Trudeau Club. Dr. Long spoke on "Experimental Studies on Visceral Tuberculin Reactions."

Guest speakers at the spring conference of the Dallas Southern Clinical Society at Dallas, Texas, April 14 to 18, included Drs. Logan Clendening, Kansas City; Vilray P. Blair, St. Louis; and Otto H. Schwarz, St. Louis. The program consisted of morning operative and diagnostic clinics in hospitals; morning postgraduate hours; round-table luncheons at noon in medical and surgical groups; general sessions in the afternoon featuring the guests; and special events in the evenings. One thousand and twelve attended the conference.

The new X-ray vaults at the City Hospital, St. Louis, built after the Cleveland Clinic disaster, successfully withstood a fire test recently. Director of Public Safety Steininger and Fire Chief Alt superintended the test to determine if automatic sprinklers, vents and fire signals functioned. The vault is built in three compartments, each having an automatic sprinkler which responds to an unusual rise in temperature, releasing a flood of water. In addition, a fire signal is released in the hospital and an alarm to the fire companies is also automatically dispatched. To test the vaults, a pan of alcohol was placed in each compartment and ten seconds after a match was touched the sprinklers were in action and alarms were going out. Four fire companies were at the hospital a minute and a half after the sprinklers began operating. The equipment installed at the City Hospital is the forerunner of adequate fire protection to be installed in other city eleemosynary institutions. A bill to appropriate \$170,000 for modern automatic fire alarm systems in seven city institutions has been approved by the Board of Estimate and Apportionment and will be introduced in the Board of Aldermen. It has been announced by Director of Public Welfare Salisbury and Hospital Commissioner Lohr that automatic aero alarm systems will be installed in the two City Hospitals, Isolation Hospital, City Sanitarium,

City Infirmary, Koch Hospital and St. Louis Training School for the Feeble Minded. Plans are being made for fire drills of the personnel of the institutions to be led by city firemen.

A postgraduate week of physical therapy will be conducted in conjunction with the ninth annual scientific session of the American Congress of Physical Therapy to be held in the Hotel Jefferson, St. Louis, September 8 to 12. The program will include teaching, demonstrations and clinics and is so arranged that the physician who has not had any instruction will find the lectures on the fundamentals a sound basic means for further study; the more experienced physician will gain considerably from the advanced expositions on light, heat, electricity, massage and other physical agents utilized in practice. Many new features in the conduct of clinics and demonstrations will be observed.

The Doctors' Golf Club of St. Louis has definitely decided to hold monthly golf meetings this year. The first meeting was held Friday afternoon, May 2, at the Normandy Golf Club. This privilege was happily secured through the secretary of the Doctors' Golf Club, Dr. Guy Simpson. Members may form their own foursomes and tee off any time after 1 p. m. At the first meeting, the scores were tabulated and, with the members' club handicaps before them, the committee in charge divided the membership into four classes,—championship, class A, class B and class C. A leader will be appointed by the president for each class. This leader will run the meetings of his own class, get out his members and tabulate the results. Meetings will be repeated on the first Friday of each month throughout May, June, July, August, September and October. There will be a dinner after the afternoon matches. Friday was selected because it is not possible to secure any golf course on any other afternoon except Monday, which is not a good day for many members of the Doctors' Golf Club to get away from their work.

The American College of Physicians announces the John Phillips Memorial Prize of \$1500 which will be awarded for the most meritorious contribution in internal medicine and sciences contributing thereto. The contribution must be submitted in the form of a thesis or dissertation and the work upon which it is based must have been done in whole or in part in the United States or Canada. Competition will close August 31, 1930. E. R. Loveland, executive secretary of the American College of Physicians, Philadelphia, will be in charge of the theses.



The British Medical Association will hold its ninety-eighth annual meeting in Winnipeg, Manitoba, Canada, August 25 to 29. The Canadian Medical Association will be host on this occasion and an extensive entertainment program to supplement the scientific meeting is already well arranged.

The American Proctologic Society will hold its thirty-first annual session in Buffalo, June 22, 23, 24. Invitations to members of all organizations affiliated with the American Medical Association have been issued. The principal speaker will be Dr. Daniel Fiske Jones, of Boston, associate in surgery, Harvard Medical School. He will speak on "The Operative Treatment of Carcinoma of the Rectum." The Society originated in 1899 for the purpose of "investigating and disseminating knowledge relating to the rectum, anus and colon." It has a membership of fifty Fellows and thirty associates. Only members or Fellows of the American Medical Association are eligible to membership in the Proctologic Society.

The announcement by Dr. E. A. Doisy at the thirteenth annual Physiological Congress in August, 1929, of the isolation of a follicular hormone has given rise to so many personal problems for Dr. Doisy and so many administrative problems for St. Louis University that effective measures had to be devised for dealing with them. Quack remedies of various kinds have quoted their potencies in Allen-Doisy rat units and have used the discovery of the "sex remedy" in various entirely unjustifiable advertising appeals. In at least one case, the university was forced either to enter a disclaimer or to protect its good name by still more stringent measures. In the interest of public health, ethical advertising and recognized standards in pharmaceutical manufacture, the president of St. Louis University has created a committee to be known as the Committee on Grants for Research, composed of the dean of the School of Medicine, the associate dean and the professor of biochemistry with full power to deal with the various questions arising out of the situation.

On February 7, Dr. Doisy and his coworkers, Clement D. Vever and Sidney A. Thayer, had assigned to St. Louis University any patent rights which may be thought wise to secure in order that the difficulties just enumerated might be properly met. The terms of the donation provide that the eventual income, if any, is to be used entirely for the prosecution of research in the School of Medicine; any funds accruing are to be administered as the

other funds of the School of Medicine subject to the general financial policies of the university.

The president of the university, in accepting this donation committed to the newly established Committee on Grants for Research the administration of all contractual or other relationships which may arise within the university or out of it from the newly isolated product. He further empowered the committee, subject to the general university administration, to allot its income in accordance with the wishes of the donors and to administer a testing laboratory for ensuring a uniform and a dependable product.

The Council on Pharmacy and Chemistry of the American Medical Association recognized Dr. Doisy's right to name the newly isolated compound and has approved of the name "Theelin" for this follicular hormone. The Committee on Grants for Research has completed arrangements with a reputable commercial house manufacturing biological products. By the terms of the agreement, provision is made that all developments in the preparation of "Theelin," its clinical applications and the discovery of its properties must be shared alike by the university, on the one hand, and the licensee or licensees under the patent rights, on the other. In effect, therefore, cooperative research by all those interested in the manufacture and sale of the product is assured.

The one manufacturing company which has thus far been licensed will enjoy the exclusive right in the United States for the manufacture and sale for eighteen months. After that period, however, the patent rights are not restricted and other firms may be given license to manufacture and distribute under the same restrictions under which the first licensee is operating. The fullest liberty of publication is assured by the terms of the agreement. Moreover, all licensees will be required to submit their products to the testing laboratory of the university. It is the intention of the university to publish the various documents in regard to these arrangements in a special bulletin.—*Science*.

A gift of \$240,000, to be expended in seven years for research in pure science, was made to Washington University by the Rockefeller Foundation recently. The fund is to be used in science for the sake of science as against research for concrete results and industrial advancement. Solving of fundamental problems of nature and of human life with no regard for immediate utilitarian purposes will be the aim of the work.

Drs. Willard Bartlett, Jr., and Warren H. Cole, St. Louis, and Ralph R. Wilson, Kansas City, will be among speakers at the American Association for the Study of Goiter which will meet in Seattle and Tacoma, Washington, July 10, 11, and 12. Many sections of the country will be represented by men specializing in this work. Dr. Cole will speak on "Experimental Study on the Production of Hyperplasia of the Thyroid by Chemical Means." Dr. Wilson's subject will be "Effects of Thyroid Activity Upon the Female Organism." Dr. Bartlett's subject has not been announced. Dr. Kerwin W. Kinard, Kansas City, is president-elect of the organization.

Dr. B. A. Wilkes, for thirty-four years superintendent of the Missouri Baptist Hospital, St. Louis, has been granted a year's leave of absence. Dr. Wilkes will take charge of the administration of the Hollywood (Calif.) Hospital during his leave, with the view of putting efficient methods into the management of the institution. The announcement was made at a meeting held in honor of Dr. Wilkes at the Third Baptist Church, April 14. A resolution adopted by the staff of the hospital and expressing appreciation of the work done by Dr. Wilkes was read at the meeting. Dr. and Mrs. Wilkes left for Hollywood, April 22. The assistant superintendent, Eustace E. King, will be in charge of the hospital during the absence of Dr. Wilkes.

Dr. Alonzo R. Kieffer, for more than fifty years a practicing physician in St. Louis, was honored by the St. Louis Medical Society at a meeting April 22, when a bronze plaque bearing the profile of Dr. Kieffer was presented to the Society. It will be hung in the corridors of the Society's headquarters. It was largely through the efforts of Dr. Kieffer that the first home of the St. Louis Medical Society was erected.

Dr. Kieffer came to Missouri from New York when he was 11 years old. He received his medical training at the Missouri Medical College, now Washington University School of Medicine, graduating in 1879. He began his practice in Cole Camp, Mo., where he remained until 1892 when he accepted a post as teacher of anatomy and surgery at Barnes Medical College, St. Louis. Afterward he became dean of the school. This connection existed for twenty-six years.

The presentation addresses were made by Dr. Charles H. Neilson and Dr. Charles A. Vosburgh. Dr. Vosburgh said, "The physician is most successful who has two qualities: He must be a student; second, he must be a kind,

tender and sympathetic man. Dr. Kieffer is endowed with these attributes, and more." Dr. V. P. Blair, president of the St. Louis Medical Society, in accepting the plaque, said, "There is a genuine utilitarian purpose behind this presentation. It will be a source of inspiration to members of the Society as long as the science is practiced."

The Leslie Dana medal of 1930 for work in the prevention of blindness was awarded to Dr. George E. de Schweinitz, Philadelphia, professor emeritus of ophthalmology in the University of Pennsylvania, at a dinner meeting of the St. Louis Medical Society, May 24. Dr. de Schweinitz delivered an address on "Diseases of the Eye and Their Prevention." The recommendation of the award was made by the National Committee for the Prevention of Blindness and the approval of the recommendation was given by the St. Louis Society for the Blind, trustees of the Dana Medal Fund.

Dr. de Schweinitz is the author of several treatises on ophthalmology and diseases of the eye. During the World War he served as colonel in the medical corps and is now a brigadier general in the Auxiliary Medical Reserve Corps. He was elected president of the American Medical Association in 1922 when the organization convened in St. Louis. In 1927 he was awarded the Howe Prize Medal in ophthalmology.

Leslie Dana, of Brentmoor Park, set aside a fund for the presentation of the medal in 1925. It has been awarded each year since then to the person who has performed the most outstanding work in the conservation of sight and the prevention of blindness.

The Cancer Research Fund of the graduate school of medicine of the University of Pennsylvania has received a gift of \$210,000 to be received \$70,000 each year for three years. The name of the donor has not been disclosed. One joint research project has been undertaken in association with the Bartol Foundation of the Franklin Institute. Plans are being developed for the equipment of a new clinic for modern diagnosis and treatment of tumors in the American Oncologic Hospital. Dr. George M. Dorrance, professor of maxillofacial surgery in the school of dentistry of the University of Pennsylvania, has been appointed chief of the clinic. He is assembling a group of specialists to serve on the clinic staff and the hospital will gradually be developed into an anti-cancer center of complete character. Laboratories of the Cancer Research Fund have been established and a complete tissue culture department is under the direction of Dr.



Clarence E. McClung, professor of zoology at the University of Pennsylvania and Professor David H. Tennent, of Bryn Mawr College. Professor J. P. M. Volgelaar, of the University of Leyden, Holland, and Dr. Raymond C. Parker, of the Kaiser Wilhelm Institute of Biology in Berlin, have been added to the staff of this department.

The following appointments in the department of ophthalmology of Washington University School of Medicine have been announced: Dr. George H. Bishop, now associate professor of physiology in the school of medicine, professor of applied physiology; Dr. Louis A. Julianelle, of the Rockefeller Institute for Medical Research, associate professor of applied bacteriology and immunology; Dr. James A. Hawkins, also of the Rockefeller Institute, associate professor of applied biochemistry; Dr. R. Wendell Harrison, of the University of Chicago, instructor in applied bacteriology and immunology; and Garvey Bowers, of the University of Kansas, research assistant in applied bacteriology. Dr. Harvey J. Howard is head of the department of ophthalmology.

Spring, pollens and hay-fever usually make their appearance simultaneously each year, but with the first sneezes this year a new hay-fever treatment is announced in *The Lancet*.\* It is called the "rush" treatment by its author, Dr. John Freeman, director of clinical bacteriology at St. Mary's Hospital, London. He terms it thus to contrast with the former methods which he calls "leisurely" desensitization. With the latter, treatment was begun long before the hay-fever season started and was given once a week for a number of weeks. Later, because in some cases there is no off season, more intensive methods were developed and finally Dr. Freeman adopted his "rush" desensitization. This takes from two to four days with treatment given every one and a half to two hours through a fourteen-hour day. It is given either in a hospital or at home under direction of a trained nurse.

Advantages in this method are pointed out as a saving of time and tiresome details to the patient; since the treatment can be completed in a few days a convenient time may be awaited, even a time of real distress to the patient; the patient being under constant observation of a nurse, reaction can be judged more accurately and counter measures can be given if necessary; dosage can be better adapted to the

individual patient for initial doses do not matter so much because at the most only a day's time can be lost.

Dr. Freeman points out that the "rush" desensitization method offers many advantages when used alone or in combination with other systems, but to get successful and safe results it is just as necessary as ever to be cautious.

The regular meeting of the Trudeau Club, St. Louis, will be held June 5, at 8:15 p. m. at the Robert Koch Hospital. The program will include the following addresses: "The Results of Surgical Collapse Therapy in Pulmonary Tuberculosis," by Drs. Duff Allen and Ralph L. Ehrlich; "A Study of Basal Metabolism in Tuberculosis," by Dr. Charles S. Rosen; "Laryngeal Tuberculosis," by Dr. Byron J. McGinnis; "The Schilling Blood Differential in One Hundred Tuberculosis Cases at Koch Hospital," by Dr. George S. Wilson; "The Clinical Observation of the Effects of Smallpox Vaccination in Tuberculosis," by Dr. Reuban S. Stone. Invitation is extended to members of the medical association to attend.

Ground was broken for the projected \$200,000 Mothers' and Babies' Home at Ferguson, May 11. The institution is non-sectarian and is one of the few in America which allows destitute mothers to remain with their children. It is supported by Christian churches, the Christian Women's Benevolence Association and free-will contributions of individuals. A campaign to secure a \$200,000 building fund will be launched in June in St. Louis and St. Louis County. The decision to erect a new building was prompted by a recent ruling of officials that continued use of the present antiquated frame structures would not be permitted after the return of cold weather when the buildings must be heated. Also the home is overcrowded. There are 105 children and twelve mothers now at the home. The home accepts for care both the mother and the children when both are destitute. The average stay of children in the home is six months. Those dismissed are returned to their own parents or near relatives or are placed on trial with foster parents. Since the founding of the home in 1899, 9,000 mothers, babies and children have been aided. Nine hundred children have been placed for adoption, and needy families have been aided in effecting rehabilitation through boarding children whose parents were temporarily unable to care for them.

\* Freeman, John: "Rush" Inoculation; Special Reference to Hay-Fever Treatment, *Lancet* 218-744 (April 5) 1930.

The United States Civil Service Commission announces open competitive examinations for associate medical officer (pathology). Openings are in the United States Public Health Service at Ellis Island, N. Y. and Detroit, Mich. Applicants must have been graduated with the degree of M.D. from a medical school of recognized standing and must have had at least two years of specialized study or practice in human pathology. Full information may be obtained from the United States Civil Service Commission, Washington, D. C., or at the customhouse or post office in any city.

The cornerstone of the McMillan Hospital and Oscar Johnson Institute, the 14-story, \$4,000,000 structure being erected at Kingshighway and Euclid, St. Louis, was laid May 14. Announcement of \$380,000 additional donations was made at that time by Chancellor Throop, of Washington University, who related the history of the institute and hospital. Dr. Harvey J. Howard, professor of ophthalmology Washington University, and executive director of the hospital and institute, outlined the aims and purposes of the institution. Other speakers were Dr. Lee W. Dean, head of the department of otolaryngology, and Governor Caulfield.

The Josiah Macy, Jr., foundation for the promotion of methods for preventing and curing disease and the relief of suffering, was announced April 24 by Dave Hennen, New York lawyer, who will be chairman of the board of directors. According to the donor's intention, the foundation will not have laboratories or institutions of its own, but will use its funds to promote cooperation among universities, hospitals, and societies. Dr. Ludwig Kast, professor in New York Post Graduate Medical School, is president, Lieutenant-Colonel Marlborough Churchill, U. S. Army, retired, secretary, and Dr. Stewart Paton, Johns Hopkins University, is a member of the board of directors.

The solicitor seeking to obtain money under false pretenses is constantly using new methods. An item in a recent issue of the *Journal of the American Medical Association* will assist members to guard against falling prey to such persons. The clipping follows:

Dr. Russell S. Galbreath, Huntington, Ind., writes that a man calling himself Dr. E. C. Judd called at his office for the purpose of repairing instruments. He was given some instruments which he repaired and returned to Dr. Galbreath with a bill for \$4.

"Dr." Judd was paid by check, which he raised to \$40. He is said to have a charming personality. Dr. William F. Strangways, Little Rock, Ark., writes that a man by the name of Waite called on him soliciting for a uniform company of St. Louis. Dr. Strangways, who gave him an order, paid him in full and received a receipt, writes that the company admits that Waite is its agent but will not fill the order on the ground that he has not remitted the money to them. Dr. Edward L. Cornell, Chicago, writes that a man telephoned representing himself to be from the police department and requesting a contribution of \$10. When asked to whom the check should be made out, he gave the name of W. E. Wright, 865 North Wells Street. The Chicago Intelligence Bureau said that this man was not connected with the police department. According to Dr. Otto E. Benell, Greeley, Colo., one V. Sandbothe, claiming to be a masseur, has been calling on physicians expressing his desire to cooperate with them. He asks for a small loan until he can get started in business. He then leaves town. This man was about 45 years of age, 5 feet 9 inches tall, light complexioned, wore glasses and had a Swedish accent.

The following articles have been accepted for New and Nonofficial Remedies:

Mead Johnson & Company.

Mead's Dextri-Maltose with Vitamin B.

Parke, Davis & Company.

Ampoules of Pitocin 0.5 cc.

## OBITUARY

### COOK PRUITT GREGG, M.D.

Dr. C. P. Gregg, Winslow, Arizona, a graduate of Barnes Medical College, 1900, died en route to Los Angeles with a patient, May 1, aged 52.

Dr. Gregg moved to Winslow from St. Louis last February. He was a former member of the St. Louis Medical Society and was a Fellow of the American Medical Association.

### JOHN H. McCAUGHAN, M.D.

Dr. John H. McCaughan, St. Louis, a graduate of the Homeopathic Medical College of Missouri, St. Louis, 1897, died May 2 from injuries received by a fall from a second-story window at his home the previous Wednesday. He was aged 60.

Dr. McCaughan had practiced medicine in St. Louis for the last thirty-two years, specializing in obstetrics and gynecology. He was a member of the St. Louis Medical Society and a Fellow of the American Medical Association.

He is survived by his widow, two sons and a daughter.

### MARY HANCOCK McLEAN, M.D.

Dr. Mary H. McLean, St. Louis, a graduate of the University of Michigan Medical



School, Ann Arbor, 1883, died May 17, aged 69.

Dr. McLean was a pioneer St. Louis woman physician. She earned the esteem and admiration of the medical profession in St. Louis because of her high character and her ability as a surgeon. For many years she was the only woman member of the St. Louis Medical Society.

Her instinct for protecting girls in unhappy surroundings led her to devote a great deal of her time to improving their modes of living and she sent several through school. She did a great deal of charity work and was always more interested in her patient's condition than in her own reward. Dr. McLean was a member of the St. Louis Medical Society and a Fellow of the American Medical Association.

#### DAVID S. BOOTH, M.D.

Dr. David S. Booth, St. Louis, a graduate of Washington University School of Medicine, 1886, died May 16, aged 67. He was killed instantly in an accidental fall from his office in the Metropolitan Building.

Dr. Booth began practicing in St. Louis in 1889. He was associated with the late Dr. Charles H. Hughes for a number of years and continued the publication of the *Alienist* after Dr. Hughes' death. He was a ready writer and published numerous articles on his special work. He frequently addressed lay groups on neurology in its relation to public health.

Dr. Booth was a scholarly gentleman, unselfishly devoted to his profession. He was held in high esteem by patients, friends and fellow physicians. He was a member of the St. Louis Medical Society and a Fellow of the American Medical Association.

#### ROBERT D. HAIRE, M.D.

Dr. Robert D. Haire, Clinton, a graduate of Missouri Medical College (now Washington University School of Medicine) St. Louis, 1878, died at his home, April 13, after a long illness, aged 75.

Dr. Haire began practicing in Schell City immediately after his graduation. Four years later he went to Bellevue Hospital for graduate work, then returned to Schell City where he practiced for twenty years before locating in Clinton. He spent one year in the General Hospital in Vienna, where he studied surgery. Dr. Haire was one of the first to use diphtheria antitoxin in Missouri.

Dr. Haire was a member and a past president of the Henry County Medical Society,

was several times a delegate to the Missouri State Medical Association conventions and was a Fellow of the American Medical Association.

Dr. Haire was widely known and was revered and respected by patients, friends, and fellow physicians.

#### OSCAR HERMAN ELBRECHT, M.D.

Dr. Oscar H. Elbrecht, St. Louis, a graduate of Washington University School of Medicine, 1901, died at his home after a four-day illness from pneumonia, May 5, aged 53.

Dr. Elbrecht was born in St. Louis and received his education in that city, including a diploma from the St. Louis College of Pharmacy in 1894. After graduating in medicine he was appointed resident physician of O'Fallon Dispensary, the Out Clinic of the Medical Department of Washington University. From 1903 to 1910 he was superintendent and chief surgeon of the St. Louis Female Hospital. Dr. Elbrecht began private practice in 1911 and was connected with the St. Louis Maternity, Bethesda, Josephine, and Missouri Pacific hospitals.

Dr. Elbrecht was a member of the St. Louis Medical Society and a Fellow of the American Medical Association. Dr. Elbrecht specialized in surgery and held the respect and regard of physicians, both because of his ability as a surgeon and his friendly and sincere character. He was a member of the Tuscan Lodge of the Masonic order and funeral services were conducted by the Lodge. He is survived by an aunt, Mrs. Theodore Burger.

#### ST. CLOUD COOPER, M.D.

Dr. St. Cloud Cooper, Ft. Smith, Arkansas, a graduate of Washington University School of Medicine, 1882, died at his home, March 22, aged 69.

Dr. Cooper lived in Carrollton from the time he was six years old until after he was graduated in medicine. He practiced in Texas until 1895, then located in Ft. Smith where he practiced and conducted the Cooper Clinic until his death. He was a member of the Sebastian county and the Arkansas state medical societies, the Southern Medical Association, and the Tri-State Medical Society. He was a Fellow of the American Medical Association and the American College of Surgeons.

Dr. Cooper took an active part in the civic welfare of his community. He was a member of the board of health, a member of the school board, and lectured on surgical nursing in a nurses' training school.

Dr. Cooper comes from a family that has

produced many physicians. Dr. Cooper's father, Dr. John C. Cooper, was an active physician in Carrollton for almost 60 years; his brother, Dr. H. B. Cooper, has practiced medicine in Honolulu for twenty-six years; a nephew, Dr. Charles B. Cooper, has practiced in Honolulu for forty years; and another nephew, John Wm. Cooper, is a junior in Washington University School of Medicine.

This brief story of the life of Dr. Cooper and his contributions to medicine, as well as that of other members of his family, is given in recognition of Dr. Cooper, and also of Carrollton as the background of many men who have made a success in their chosen field of medicine.

C. S. AUSTIN, M.D.

#### ROBERT HALEY, M.D.

Dr. Robert Haley, Brookfield, a graduate of Washington University School of Medicine, 1884, died of chronic nephritis, February 1, aged 70.

Dr. Haley practiced medicine in Linn County for forty-nine years. He was a faithful and earnest member of the Linn County Medical Society, the Missouri State Medical Association, and a Fellow of the American Medical Association. He was progressive and took an active interest in the civic welfare of his community. He was loved and respected by friends, patients, and fellow physicians, not only in his own county but throughout the state. Before the state medical society was reorganized in 1903, Dr. Haley was a member of the North Missouri and Grand River medical societies. He was president of both organizations and of the Linn County Medical Society.

In recognition of their regard for Dr. Haley the Linn County Medical Society adopted the following resolutions:

WHEREAS, The hand of death has taken from our midst one of our oldest and most devoted members, Dr. Robert Haley, and

WHEREAS, The medical fraternity and the community in general have suffered the loss of a faithful, honorable, and public-spirited physician, therefore be it

*Resolved*, That we as a Society deeply regret his passing, and tender to his bereaved wife and sons our sincere sympathy, and be it further

*Resolved*, That a copy of these resolutions be placed upon the records of the Society, a copy be presented to the widow and sons and a copy be sent to THE JOURNAL of the Missouri State Medical Association.

P. L. PATRICK, M.D.

C. E. JENKINS, M.D.

J. LANE EVANS, M.D.

## SOCIETY PROCEEDINGS

### COUNTY SOCIETY HONOR ROLL FOR 1930

(UNDER THIS HEAD WE LIST SOCIETIES WHICH  
HAVE PAID DUES FOR ALL THEIR MEMBERS)

#### HONOR ROLL

Mercer County Medical Society, December 12, 1929.

Madison County Medical Society, December 16, 1929.

Benton County Medical Society, January 8, 1930.

Pulaski County Medical Society, January 11, 1930.

Webster County Medical Society, January 24, 1930.

Chariton County Medical Society, January 27, 1930.

Ralls County Medical Society, March 6, 1930.

Camden County Medical Society, March 10, 1930.

Dent County Medical Society, April 2, 1930.

Schuyler County Medical Society, April 5, 1930.

Platte County Medical Society, April 7, 1930.

Christian County Medical Society, April 7, 1930.

Macon County Medical Society, April 12, 1930.

Miller County Medical Society, April 14, 1930.

Phelps County Medical Society, April 25, 1930.

Atchison County Medical Society, April 30, 1930.

Lafayette County Medical Society, May 9, 1930.

### GASCONADE-MARIES-OSAGE COUNTY MEDICAL SOCIETY

The Gasconade-Maries-Osage County Medical Society met at Owensville, April 24, at two p. m. The scientific program was furnished by Drs. Paul C. Schnobelen and L. H. Slocumb, of St. Louis, sent to us by the Postgraduate Committee of the State Association.

Dr. Schnobelen gave a talk on "Indigestion, With Particular Reference to the Stomach and Duodenum: Medical Aspect."

Dr. Slocumb read a paper on "Acute Gastric Dilatation and Duodenal Obstruction: Surgical Aspect."

Both of these interesting papers were greatly enjoyed.

The following members were present: Drs. J. J. Ferrell, Owensville; W. R. Ferrell, Belle; O. H. Jones, Vienna; M. E. Spurgeon, Red Bird. Visitors: Dr. W. H. Breuer, St. James, and Dr. Isenberg, of Belle.

M. E. SPURGEON, M.D., Secretary.

### JASPER COUNTY MEDICAL SOCIETY

The meeting of the Jasper County Medical Society of March 11, 1930, was called to order by Dr. H. L.



Wilbur, Joplin, vice president. Twenty-two members and six visitors were present. The minutes of the previous meeting were read and approved.

Dr. L. C. Chenoweth, Joplin, reminded the Society of the tentative plan to invite the Missouri State Medical Association to meet in Joplin in 1931. After discussion, Dr. Chenoweth moved that the delegates be instructed to extend this invitation at the 1930 meeting of the Association. Dr. J. L. Sims, Joplin, seconded the motion and it carried unanimously.

Dr. O. T. Blanke, Joplin, secretary, reported that Dr. V. P. Blair, St. Louis, had accepted the invitation to speak at the joint meeting of the county medical and dental societies.

Dr. L. B. Clinton, Carthage, reported a very interesting emergency case involving a differential diagnosis of trauma to the upper urinary tract, lower urinary tract, or to some abdominal organ, which proved to be massive hemorrhage into the perirenal space from a ruptured right kidney. The kidney was removed and the patient is convalescing.

The scientific program consisted of a talk by Dr. J. Edgar Stewart, of St. Louis, on "Fractures Involving Joints," which he illustrated with lantern slides and case histories. He covered the more common locations of fractures involving joints in a comprehensive manner and his paper elicited lively discussion.

#### Meeting of March 18

The meeting was called to order by Dr. Charles T. Reid, Joplin, president, with fourteen members and one visitor present.

Dr. J. W. Barson, Joplin, chairman of the committee on arrangements for the joint meeting with the Southwest Missouri Dental Society, made a preliminary report.

A letter from Representative Joe Manlove concerning the proposed narcotic and liquor legislation was read.

Case reports were made by Drs. J. W. Barson, Joplin; E. J. Burch, Carthage; O. T. Blanke, Joplin.

Because of a misunderstanding in dates the program was provided by Dr. A. W. McAlester, III, Kansas City, on very short notice. He provided an interesting and instructive evening by telling of a trip through Japan and China to India where he spent several weeks in the interior at an eye hospital. Three reels of moving pictures of his trip helped make the evening enjoyable.

#### Meeting of March 25

The meeting was called to order by Dr. Charles T. Reid, Joplin, president, with twenty-eight members and ten visitors present.

A communication from Dr. Frank I. Ridge, Kansas City, chairman of the committee on the Widows' Fund of the Missouri State Medical Association, was read by the secretary.

It was moved by Dr. C. C. Cummings, Joplin, and seconded by Dr. R. E. Myers, Joplin, that the secretary endorse the action of this committee.

On motion of Dr. Clark, seconded by Dr. W. S. Loveland, Joplin, an amendment was made that only men fifty-five years of age and under be allowed to vote. The amendment carried and the motion as amended carried.

At the request of one of the members, a form letter from Dr. H. S. Lambdin, of the Iodine Products Company, Caney, Kansas, relative to the practice of medicine by radio was read and on motion of Dr. J. W. Barson, Joplin, seconded by Dr. Clark, the Society voted to endorse the opposition to this form of unethical practice. The secretary

was instructed to so inform the writer of the letter and the American Medical Association.

The scientific program was presented by Mr. George Martin, of the educational department of the General Electric X-Ray Corporation. He gave a resume of the electromagnetic spectrum and discussed the various wave bands of the spectrum which are being utilized in electrotherapy. He demonstrated a number of generators of various types and illustrated the general subject with lantern slides and moving pictures.

At the close of his talk the Society extended an expression of thanks and appreciation to Mr. Martin and his company.

#### Meeting of April 1

The meeting was called to order by President C. T. Reid, Joplin. In the absence of the secretary, Dr. H. L. Wilbur, Joplin, acted in that capacity. There were nineteen members and eight visitors present.

A communication from the Jasper County Crippled Children's Committee regarding the presence of our members at the clinic to be held April 8 was read. After some discussion, it was the consensus of opinion that there would be fewer misunderstandings if those members who are interested would voluntarily attend the clinic and assist in the work rather than to have the Society designate certain individuals for this work.

Dr. H. L. Dwyer, Kansas City, gave a talk on "Infant Feeding." He emphasized the desirability of breast feeding but suggested that supplementary feeding be started at about the fourth month, later adding cereals and vegetables. He gave a number of formulas for artificial feeding and presented his subject in a practical way.

#### Meeting of April 8

This was a joint meeting of the Society and the Southwest Missouri Dental Society held at Redding's Mill Inn, at 7:00 p.m. A three-course dinner was served to seventy members of the two societies and their guests. Dr. Vilray P. Blair, St. Louis, and Dr. Frank D. Dickson, Kansas City, were among the guests.

The scientific program was presented by Dr. Vilray P. Blair, St. Louis, through the courtesy of the Postgraduate Committee of the State Association. Dr. Blair spoke on "The Management of the Cleft Palate." He showed a number of lantern slides and two reels of moving pictures illustrating plastic surgery of different kinds, and discussed the subject as the pictures were shown.

Dr. D. E. Woodard, Kansas City, discussed Dr. Blair's paper.

Dr. Frank D. Dickson, Kansas City, who had conducted the clinic for the Missouri Society for Crippled Children in Joplin on April 8, made a brief talk on the purposes and functions of that organization.

#### Meeting of April 22

The meeting was called to order by President C. T. Reid, Joplin. There were nine members and two visitors present. The minutes of April 1 and April 8 meetings were read and approved.

A letter from Dr. E. J. Goodwin, St. Louis, state secretary, in regard to the Porter Bill, H. R. 11143, was read and the secretary was instructed to wire the senators to delay action until the American Medical Association could pass upon its desirability.

A letter from the secretary of the Cole County Medical Society relative to reduction of state dues was read. It was the opinion of those present that a reduction of a few dollars in the dues would

have little effect on the possible increase in membership, whereas the money on hand provided a fund available for any emergency and proper administration of state society business. It was therefore moved by Dr. Clark and seconded by Dr. J. W. Barson, Joplin, that the delegates be instructed to vote for the present schedule of state dues. The motion carried.

A letter from the Petrolagar Laboratories relative to moving pictures on various subjects was read and the secretary was instructed to communicate with the company in an effort to secure several or all of the films available.

The scientific program was presented by Dr. John L. Myers, Kansas City, who talked on "The Causes and Prevention of Deafness." He gave a very interesting chalk talk which was intended to help the general practitioner in recognizing deafness early enough to help. He emphasized the value of early paracentesis and the careful control of eczematosis in the prevention of deafness.

#### Meeting of April 29

In the absence of the president, Dr. Charles T. Reid, Joplin, Dr. H. L. Wilbur, Joplin, vice president, presided. There were fourteen members present. The minutes of the previous meeting were read and approved.

Communications of Dr. E. R. Hornback, Joplin, the delegate to the state convention, and Dr. J. W. Barson, his alternate, were presented informing the Society of their inability to attend the meeting of the state society. It was moved by Dr. L. C. Chenoweth, Joplin, that because of the short time remaining the secretary be empowered to confer the power to act upon any member of the Society who will be able to attend the meeting. The motion was seconded by Dr. B. E. DeTar and carried.

It was moved by Dr. Chenoweth that the secretary write the Kansas City *Star* expressing appreciation for its attitude in supporting organized medicine and relieving the unethical practices of certain members of the profession. The motion carried.

The letters of Senators Hawes and Patterson relating to the telegrams sent last week were read.

Dr. C. T. Reid, Joplin, presented the invitation of the Woman's Club of Joplin to the members of the Society and their wives to attend the lecture by Dr. Richard L. Sutton, Kansas City, who will speak on his African travels.

It was moved by Dr. L. W. Baxter, Joplin, and seconded by Dr. J. L. Sims, Joplin, that the next meeting of the Society be dispensed with and the Society accept the invitation of the Woman's Club. The motion carried.

There was no scientific program and the time was spent with case reports.

Dr. L. W. Baxter, Joplin, opened the discussion with a story.

Dr. C. T. Reid, Joplin, presented a case of chronic otitis media which developed a subdural abscess. He emphasized the need of care and treatment of chronic otitis media.

Dr. J. T. Sims, Joplin, presented a case of dementia in a four-para which had been developing for some time but which was aggravated by the patient's last pregnancy.

Dr. W. S. Loveland, Joplin, presented a case of purported insanity in a young woman.

Dr. W. B. York, Sarcoxie, presented three interesting thyroid cases which had been closely observed over a long period and checked by numerous basal metabolisms.

Dr. H. L. Wilbur, Joplin, presented the case of a

nurse who had had gastro-intestinal symptoms, nervousness and later developed an otitis media and mastoiditis. Operation revealed an old abscess of long standing in the mastoid. Correction of this has apparently relieved her gastro-intestinal symptoms.

OTTO T. BLANKE, M.D., Secretary.

#### LINN COUNTY MEDICAL SOCIETY

The Linn County Medical Society met at the office of Dr. J. L. Cantwell, Bucklin, April 15. The following members were present: Drs. J. L. Cantwell, Bucklin; W. W. Ellis, P. L. Patrick, and Ola Putman, Marceline; J. Lane Evans and Roy Haley, Brookfield.

No program had been arranged by the Board of Censors so regular business was taken up and disposed of.

Dr. Roy Haley was appointed delegate to the state meeting and Dr. P. L. Patrick alternate.

The secretary was instructed to investigate the Professional Men's Credit Board.

The secretary read the resolutions adopted defining the attitude of this Society toward osteopaths and chiropractors.

Dr. W. W. Ellis, president, appointed Drs. C. E. Jenkins and J. Lane Evans, of Brookfield, and P. L. Patrick, of Marceline, to draft resolutions on the death of Dr. Robert Haley, a copy of the resolutions to be sent to the family, to THE JOURNAL of the Missouri State Medical Association, and a copy to be spread on the minutes of the Society.

The next meeting will be held at Linneus in June. Refreshments were served and the meeting adjourned.

OLA PUTMAN, M.D., Secretary.

#### NODAWAY COUNTY MEDICAL SOCIETY

The regular meeting of the Nodaway County Medical Society was held on Friday, April 11, in the first-floor lecture room of the Sisters of St. Francis Hospital, Maryville. The meeting was called to order at 8:00 p. m. by the secretary, Dr. Chas. D. Humberd, Barnard, in the absence of the president, Dr. L. E. Dean, Maryville, and the vice president, Dr. C. P. Fryer, Maryville. The following members were present: Drs. C. T. Bell, K. C. Cummins, C. V. Martin, R. C. Person, Jack Rowlett, Wm. M. Wallis, Jr., of Maryville; Chas. D. Humberd, Barnard; and W. M. Hindman, Burlington Junction.

The minutes of the regular meeting of March 14 were read and approved.

The secretary read a synopsis of the business which was to come before the House of Delegates of the Missouri State Medical Association during the annual meeting at Hannibal next month. The Society expressed a preference that its delegate go uninstructed on these measures.

The secretary read a telegram from Dr. Frank J. Hall, bacteriologist, Kansas City, who was to have addressed the Society through the courtesy of the Postgraduate Committee of the Missouri State Medical Association, stating that the speaker could not be present because he was unavoidably detained by a medicolegal case.

Ample evidence was presented to the Society by members present that a firm of pharmacists, of Maryville, was engaged in unethical practices in that they supported the policies of a quack prescriptionist in Milford, Kansas, and are advertised over this quack's radio broadcasting station to the public that they were filling his prescriptions. The members present were of the opinion that such action and



collusion on this firm's part is not in accord with ethical medicine or ethical pharmacy. The secretary was instructed to notify all members of the Society's opinion of this firm's actions, that such precautions as may be considered necessary may be used in advising our patients as to where their prescriptions should be filled, and to whom orders for serums and similar merchandise should be sent.

A motion was made, seconded and carried, that the chair appoint a committee of two to confer with the firm to advise them of the Society's attitude toward them, and to request a statement from them regarding a continuance of their cooperating relations with the quack prescriptionist, and to give a report of their conference at the next regular meeting. The chair appointed Drs. W. M. Wallis, Jr., and C. V. Martin, of Maryville, members of this committee.

Dr. Martin moved that the meeting adjourn. The motion was seconded by Dr. K. C. Cummins, and carried at 8:20 p. m.

CHAS. D. HUMBERD, M.D., Secretary.

## WOMAN'S AUXILIARY

### OFFICERS 1929-30

President, Mrs. M. P. Ravenel, Columbia.

President-Elect, Mrs. A. W. McAlester, Kansas City.

1st Vice President, Mrs. U. J. Busiek, Springfield.

2nd Vice President, Mrs. James F. Owens, St. Joseph.

3rd Vice President, Mrs. H. C. Brashear, Mexico.

4th Vice President, Mrs. L. G. McCutchen, St. Louis.

Corresponding Secretary, Mrs. C. M. Sneed, Columbia.

Recording Secretary, Mrs. David S. Long, Harrisonville.

Treasurer, Mrs. R. C. Haynes, Marshall.

Auditor, Mrs. C. T. Ryland, Lexington.

Directors (2 years): Mrs. W. W. Ford, Gordonville; Mrs. Harry F. Parker, Warrensburg; Mrs. F. H. Spencer, St. Joseph; Mrs. C. C. Cummings, Joplin; Mrs. Raymond Spivy, St. Louis. (1 year): Mrs. T. S. Fleming, Moberly; Mrs. S. F. Freeman, Springfield; Mrs. Robert McE. Schaffler, Kansas City; Mrs. Hudson Talbott, St. Louis; Mrs. J. J. Gaines, Excelsior Springs.

### LINN COUNTY AUXILIARY

The Woman's Auxiliary to the Linn County Medical Society met with Mrs. J. L. Cantwell, Bucklin, April 15.

### SCHOLARSHIP FUND

The Scholarship Fund was completed in April by a contribution of \$10.40 from Randolph-Monroe County Auxiliary and the entire sum of \$500 has been forwarded to the recipient of the award, Mr. Edwin Schmidtke, a student at Washington University School of Medicine.

### WOMAN'S AUXILIARY TO HAVE INTERESTING MEETING AT DETROIT

The Woman's Auxiliary to the American Medical Association under the presidency of Mrs. George H. Hoxie, Kansas City, Missouri, will open its annual convention in Detroit, June 23, with a meeting of the board of directors at the Statler Hotel at

2:30. All state presidents and presidents-elect have been asked to be present at the preconvention and postconvention board meetings.

Registration will begin at 9:00 a. m., Tuesday, June 24, at the Auxiliary Headquarters, Hotel Tuller. A business meeting will convene at 9:30 a. m. and include invocation, address of welcome and response, officers' and committees' reports, and new business. The program, which is tentative, includes a luncheon at 1:00 p. m. at the Hotel Tuller Roof Garden. Speakers have not been announced.

An A. M. A. Workers' Conference will follow registration on Wednesday and will include talks on "The purpose of the Auxiliary," and "The National Program." Mrs. Evarts V. De Pew, San Antonio, Texas, will lead a discussion on "The Analysis of the Work of State Auxiliaries on the Basis of the Official Programs of the National Auxiliary." Mrs. De Pew will be assisted by all state presidents. The discussion is planned to be a workers' conference in the real sense of the word and will interest any doctor's wife, but especially state presidents, presidents-elect, committee chairmen, and corresponding county officers. Following this session, officers will be elected, new officers introduced and unfinished business concluded.

Mrs. J. Newton Hunsberger, Norristown, Pennsylvania, the new president, will preside Thursday at the postconvention board meeting. State presidents and presidents-elect will assist the board and incoming president in planning work for 1930-31. A round-table discussion for state presidents and committee chairmen at 10:00 a. m. will conclude the convention. Discussions will include "Chief Purposes of the State Annual Meeting," "Adequate Preparation for the State Meeting," "Agenda for the State Meeting," and "Duties of State Board Members."

### RECTAL ADMINISTRATION OF LIVER EXTRACT (COD)

During the course of an investigation of the efficacy of liver extract derived from the cod, a patient was encountered by Paul Reznikoff, New York (Journal A. M. A., Aug. 3, 1929), who developed pneumonia and could not retain the medication when given by mouth. A woman, aged 58, complained of faintness and weakness of four days' duration. She appeared to be well developed and fairly well nourished, chronically ill, and pale with a slightly yellow tinge to her skin. The positive observations were a few teeth left in the lower jaw in fair condition, a smooth, moist, clean tongue showing some atrophy, pale mucous membranes, a few fine rales at the right base, a soft blowing systolic murmur over the precordium heard best at the apex, absent knee and ankle jerks, absent vibratory sense up to the hips, and hypesthesia of both legs to pin prick. One week later the temperature began to rise and reached 105. Coincident with this appeared signs of consolidation of the right lower lobe, characterized by moderate dullness, bronchial breathing and numerous, constant moist rales. While the patient was in this pneumonic state, cod liver extract was started. The patient felt very sick and vomited the medication. Five days later the extract was begun by rectum, 45 cc. twice daily in 60 cc. of warm milk. The patient retained this at first for one-half hour and later for one and one-half hours. The rise of reticulocytes to 21 per cent after four days' rectal administration is of sufficient importance to call this case to the attention of those who may be confronted with very sick patients who cannot take liver by mouth.

## MISCELLANY

### MEMORIAL SERVICE FOR DR. GUY L. NOYES

A memorial service for the late Dr. Guy L. Noyes was held in connection with the annual meeting of the Eugene Field Foundation for the Relief of Crippled Children in St. Louis, April 22. Following a dinner, Dr. Kenneth Coonse, professor of orthopedic surgery at the University of Missouri, delivered an illustrated lecture and presented several patients showing the beneficial effects of the work at Columbia and other hospitals. Dr. A. Ross Hill, Kansas City, former president of the state university, read a tribute to Dr. Noyes giving his activities and accomplishments. Dr. Noyes was active in the organization and incorporation of the Eugene Field Foundation which raised funds to supplement the state appropriation for the crippled children's service. Under Dr. Noyes' supervision the crippled children's service was established at the University Hospital.

The following resolutions in memory of Dr. Noyes and others active in the work with crippled children were adopted:

WHEREAS, Death has stilled the activities of Dr. Guy L. Noyes, Louis P. Aloe, Sigmund F. Baer and Firmin Desloge, founder members of this organization, and sincerely interested in its humanitarian purposes, and

WHEREAS, It was due to the unselfish desires of Dr. Guy L. Noyes to perpetuate and expand the work of the Missouri Crippled Children's Service, as established by the Fifty-Fourth General Assembly through a meager state appropriation, that the Eugene Field Foundation for the Relief of Crippled Children was formed to join the hearts of great men and women of the state together to meet a specific emergency by affording the financial support necessary in bridging the gap between the exhausted state appropriation and future action by the General Assembly, and

WHEREAS, As a member of the Board of Directors and of the Executive Committee of the Eugene Field Foundation, with its primary purpose accomplished, Dr. Noyes staunchly supported the organization's larger and continuing policy of providing aid for other charitable institutions elsewhere which, like the University Hospital of which he was director, are providing care and scientific treatment for indigent crippled children, thereby demonstrating his cordial interest in state-wide relief for the unfortunate children whose deformities respond so readily to treatment, and

WHEREAS, As founder-members of the Eugene Field Foundation, Louis P. Aloe, Sigmund P. Baer and Firmin Desloge manifested generous interest in the organization's activities and contributed substantially of their means in furtherance of its plan of relief. Then, he it

Resolved, By the Eugene Field Foundation for the Relief of Crippled Children in annual membership meeting assembled at the Hotel Chase, St. Louis, this twenty-second day of April, 1930, that in the death of Dr. Guy L. Noyes we have been deprived of the advice and counsel of an active member of our Board of Directors and the Executive Committee thereof and that in extending this expression of recognition of his humanitarian self-sacrifice for the good of this movement that we also express our individual and personal appreciation for the pleasant social relations we were privileged to enjoy with him during his active identity with this organization and its members and to attest the warm and cordial evidence of friendship so characteristic of his intercourse with fellowmen, and, be it further

Resolved, That the generous support given our organization during the lifetime of Louis P. Aloe, Sigmund P. Baer, and Firmin Desloge was in keeping with their sincere interest in the welfare of and the improvement of conditions surrounding unfortunate childhood and that their services in this regard be given just recognition. Therefore, be it further

Resolved, That this resolution be spread upon the minutes of this meeting of the Eugene Field Foundation for the Relief of Crippled Children that the active connection of our departed friends with our efforts may be properly memorialized and that copies hereof shall be sent the families of our departed friends.

### THE SCENIC COLON

Dr. P. F. Cole, Springfield, gave a "personally conducted" "Tour of the Colon," at the February 14 meeting of the Springfield (Mo.) Clinical Society. Among invitations issued for the meeting was one

to Dr. William Rienhoff, Baltimore, Maryland, well known to Missouri physicians through a long time of practicing in Springfield. His answer, as it appeared in the Springfield (Mo.) *Clinical Bulletin* for April, follows:

It was a matter of utter dejection to me when I found I had missed, by just a few minutes, the train that was to hurry me to your Public Library last Friday. I was anxious to join you in your wonderful boat trip (or was it by bus?) through the tunneled valley of the famous Colon. I visualized, with moist eyes, how many instructive and pleasurable sights and remembrances I have been deprived of because of that untimely mishap, and how much satisfaction I should have brought back with me through your original and unique efforts.

I knew already of the scientifically constructed look at the entrance of your excursion and of the strong gate at its conclusion. I knew also of two or three tollgates in the course of your advance and of the numerous holdups and fortifications at the final estuary; however, I had no knowledge of the rest of the six tollgates, including the stronghold of Cannon, all of which I should have encountered and squeezed through with full realization of their existence. And how much joyful shouting as well as doleful grieving would have been brought back to memory when recalling the many raids made in times gone by on the various points of interest on this busy thoroughfare.

But also how much delight would have been accrued to our weary senses through this relaxation in congenial company.

Just think of the variety of scenic hills and dales, defiles and plains, the luxuriant flora and exuberant fauna with which our optics would have been enchanted in the dreamy twilight. Think of the modulating octaves, from the quiet chirping and twittering like that of a house swallow, of the gurgling and abortive roaring like that of a rivulet in the meadow, to the final fortissimo of trumpets and kettle drums by which our acoustics would have been enraptured. And, last but not least, don't minimize the soothing soporific aromas from the ammoniacally-scented orange blossoms in the cecal front garden, through the mature sulfureted odorousness hailed as preventive against tuberculosis, to the last wonderful mixture of essences in the cabaret ensemble near the end of the trip, and, perhaps, a last undescribable fragrance emanating from a hidden humble speak-easy; by all of which our olfactory would have been bewitched and made mindful of for the balance of its days.

On the way, no doubt, a number of old native acquaintances would have been greeted, in their full view and regalia, mostly those, it is true, of the smaller fry. Of the aristocratic "Stuckups," such as the Misses Teniae, perhaps not their bewildering sparkling eyes might have been looked into, but enough of their anatomy below the belt might have been espied to satisfy the curious.

Just ponder over what I have let slip by. But there is no use brooding over "what might have been." Sometimes the mere memory of an unfulfilled wish will be a thing of joy. And memory is the only friend that grief can call its own.

After your kind invitation to join, and after my regrettable inability to partake, I felt it incumbent upon my conscience to write you these lines, to express to you my appreciation and thanks, and to relieve myself from the incubus of depression.



Otherwise I am feeling well and growing daily in age and wisdom, especially in the former.

With sincere greetings to yourself and all the members of the Greene County Medical Society.  
DR. WM. RIENHOFF.

## CORRESPONDENCE

### IN JUSTICE OF BARNARD FREE SKIN AND CANCER HOSPITAL

Fornfelt, Mo., April 5, 1930.

To the Editor:

Recently I have had an opportunity to learn something about the Barnard Free Skin and Cancer Hospital at St. Louis. If ever an institution was performing a service that is a blessing to humanity it is this institution. It is doing this in a perfectly ethical manner and it should be endorsed by every true physician in Missouri and the rest of the United States.

The endowment of this institution is inadequate; it has an entire floor that cannot be used on account of lack of funds. It has a waiting list of afflicted persons who cannot be taken care of any place else, and time in these cases is an important factor.

The staff which is composed of very eminent medical men receives no pay. Can you realize what they are doing for humanity? Recently I referred a man to this institution; a radical operation was performed. He has a family, a wife and three children, and is a day laborer and if the result of the operation is not permanent he will at least be able to take care of his family for several years.

Some plan ought to be devised to put this institution on a solid foundation. In other words, it ought to be endowed to a point that will put it beyond want and make it an institution that Missouri and the entire nation can be proud of. No class of patient needs attention more than the one that needs to be in an institution of this kind and none is less able to pay. It is all right to continue to give to Washington University and St. Louis University, but neither of these institutions is as deserving as the Barnard Free Skin and Cancer Hospital.

Wake up, St. Louis, Missouri, and the United States, and take care of an institution that is purely for the benefit of the afflicted poor.

G. S. CANNON, M.D.

## TRUTH ABOUT MEDICINES

**COMMITTEE ON FOODS.**—The Council on Pharmacy and Chemistry has established a Committee on Non-medicinal Foods to pass on all food products for which health claims might be made. The Committee has prepared a series of rules under which it proposes to operate and these have been approved by the Council on Pharmacy and Chemistry. Any product which it is desired to have considered for "Accepted Foods" should be presented to the Committee on Foods, American Medical Association, 535 North Dearborn St., Chicago. The rules for the acceptance of foods are patterned on the principles of New and Nonofficial Remedies, with such modifications and relaxations as are made necessary by the different nature of the products concerned. Reports on products considered, having received approval of the Committee, may be published in the *Journal of the American Medical Association* under the section devoted to the Council on Pharmacy and Chemistry with a special heading, "Committee on Foods." At the end of each year, all reports shall

be assembled in book form, with the reports of all products accepted preceding the reports of all products rejected. This book shall have the title "Accepted Foods." (Jour. A. M. A., October 12, 1929, p. 1144.)

### NEW AND NONOFFICIAL REMEDIES

**MEAD'S VIOSTEROL IN OIL 100 D.**—A branch of viosterol in oil 100 D, N. N. R. (Jour. A. M. A., August 31, 1929, p. 693), Mead Johnson & Co., Evansville, Ind.

**LENIGALLOL-ZINC OINTMENT.**—It contains lenigallol (Jour. A. M. A., April 6, 1929, p. 1181) 6 per cent in a base composed of zinc oxide ointment—U. S. P. E. Bilhuber, Inc., New York.

**TYPHO-SEROBACTERIN-MULFORD** (Sensitized Typhoid Vaccine) (New and Nonofficial Remedies, 1929, p. 384).—This product is also marketed in packages of three syringes, being three immunizing doses. H. K. Mulford Co., Philadelphia. (Jour. A. M. A., February 1, 1930, p. 339.)

### Foods

The following products have been accepted as conforming to the rules of the Committee on Foods of the Council on Pharmacy and Chemistry of the American Medical Association. These products are approved for advertising in the publications of the American Medical Association, and for general promulgation to the public.

**JUNKET** (The Junket Folks, Chr. Hansen's Laboratory, Inc., Little Falls, N. Y.).—To prepare the product the dried blown or dried salted rennets in ordinary salt brine is extracted. The enzyme is then precipitated by salting to saturation and the resulting precipitate is mixed with pure Worcester salt, dried and pressed into tablets. Flavored Junket consists of rennet powder, similar to that used for Junket Tablets, except that this is mixed with cane sugar and natural flavoring. While the rennin enzyme itself does not add to the fuel value of milk, it makes it more wholesome because of its digestive action on the milk.

**SPINTRATE** (Spinach Concentrate (Spinach Products Co., Inc., Norfolk, Va.).—Spinach in the form of a fine powder made from fresh spinach of the Savoy or curly leaf type. Spintrate is an excellent source of food iron, calcium, and phosphorus; it is also a rich source of vitamin A, B (B<sub>1</sub>) and G (B<sub>2</sub>).

**WHITEFIELD GENUINE GRAPEFRUIT JUICE** (Whitefield Citrus Corporation, Long Island City, N. Y.).—This is pure undiluted juice of sun-ripened grapefruit and contains no added preservatives. The process of manufacture preserves the original character of the juice.

**WHITEFIELD GENUINE ORANGE BUTTER** (Whitefield Citrus Corporation, Long Island City, N. Y.).—This is an orange preserve with a new and different flavor and consistency made from tree-ripened fruit.

**AUNT JEMIMA PANCAKE FLOUR** (The Quaker Oats Co., Chicago).—The product is a mixture of four flours—wheat, corn, rye, rice—with sugar, milk, baking powder and salt.

**AUNT JEMIMA BUCKWHEAT, CORN AND WHEAT FLOUR** (The Quaker Oats Co., Chicago).—This is a buckwheat, corn and wheat flour.

**QUAKER CRACKELS** (The Quaker Oats Co., Chicago).—This is composed of corn, wheat and oats.

**QUAKER QUICK MACARONI** (The Quaker Oats Co., Chicago).—This is a new-type Macaroni. A milk containing macaroni that cooks in five minutes in-

stead of twenty. (Jour. A. M. A., February 8, 1930, p. 411.)

**BORDEN'S EVAPORATED MILK** (The Borden Co., New York City).—It has the following average composition: fat, 7.85 per cent; protein, 6.88 per cent; carbohydrates, 9.67 per cent; ash, 1.55 per cent; total solids, 25.95 per cent; water, 74.05 per cent. The product is manufactured from whole milk. Borden's Evaporated Milk is advertised for infant feeding and for household use in making milk convenient for cooking. It is claimed that the milk is clean and sterile; that it resembles breast milk in ease of digestion; and that it produces fine flocculent curds.

**CREAM OF WHEAT** (Cream of Wheat Co., Minneapolis).—It is a product made entirely from wheat. It consists of the endosperm of the wheat, with only so much of the bran and germ as it is impossible to remove. The product is used because it is rich in energy content and easily digested.

**GERBER'S STRAINED VEGETABLE PRODUCTS** (Gerber Products Division, Fremont Canning Co., Fremont, Mich.).—Brands: Gerber's Strained Spinach, Strained Carrots, Strained Green Beans, Strained Peas, Strained Prunes, Strained Tomatoes and Strained Vegetable Soup. Specially selected vegetables, steam pressure cooked and sterilized at high temperature. It is claimed that by excluding air and cooking under steam pressure without water, a greater conservation of mineral salts and vitamin elements is effected.

**THE NEW PETTJOHN'S** (The Quaker Oats Co., Chicago).—This product consists of the whole wheat grain. It is obtained by steaming and flaking wheat which has a tender bran, the bran being included in unground form. The product contains all the nutritive elements of whole wheat.

**POST'S BRAN FLAKES WITH OTHER PARTS OF WHEAT** (Postum Co., Inc., Battle Creek, Mich.).—The product is composed of bran flakes with other parts of wheat, flavored with malt syrup and salt. It combines the advantages of wheat bran in a nourishing and appetizing food. (Jour. A. M. A., February 15, 1930, p. 485.)

**MUFFETS (Irradiated)** (Quaker Oats Co., Chicago).—Whole wheat, cooked, crushed, drawn out to filmy ribbon of wheaten threads. Wound round and round, baked and toasted. Muffets (Irradiated) makes vitamin D available in a breakfast food for all ages except infants. It is not intended as a therapeutic agent to supplant cod liver oil.

**QUAKER FARINA (Irradiated)** (The Quaker Oats Co., Chicago).—Farina passed under the rays of ultraviolet lamps until it acquires vitamin D. The product will improve calcium and phosphorus retention. It holds its irradiation under extreme conditions of cooking and storing.

**QUAKER PUFFED RICE** (Quaker Oats Co., Chicago).—This product consists of rice kernels puffed to eight times normal size, providing for easy assimilation and retaining important food elements.

**QUAKER MILK SPAGHETTI** (The Quaker Oats Co., Chicago).—The product is made from whole milk and wheat. (Jour. A. M. A., February 22, 1930, p. 559.)

## PROPAGANDA FOR REFORM

**VIGANTOL NOT ACCEPTABLE FOR N. N. R.**—When reports of experimental clinical studies made it apparent that irradiated ergosterol preparations would be offered for therapeutic use, the Council on Pharmacy and Chemistry undertook to select a name for this vitamin D bearing product. The Council did this so that products of this kind might

be marketed under a single name and thus the confusion avoided which inevitably results when the same product is marketed under a multiplicity of names. The Council adopted "Viosterol" as the New and Nonofficial Remedies name for irradiated ergosterol and the name "Viosterol in Oil 100 D" to designate a preparation containing the substance dissolved in oil and having one hundred times the vitamin D potency of a standard cod liver oil. Four firms have made their products acceptable under the Council name for inclusion in New and Nonofficial Remedies. The Winthrop Chemical Co. is offering to physicians of the United States a brand of viosterol in oil 100 D under the proprietary name "Vigantol." The Council declared "Vigantol" unacceptable for New and Nonofficial Remedies because the application of a proprietary name to a preparation of irradiated ergosterol is contrary to the best interest of the medical profession and of the public. (Jour. A. M. A., February 8, 1930, p. 410.)

**The Twenty-Fifth Anniversary of the Council on Pharmacy and Chemistry.**—At a meeting held February 3, 1905, the Board of Trustees of the American Medical Association created an advisory board to be known as the Council on Pharmacy and Chemistry. The organization of this Council was perfected on February 11, 1905. Thus the Council on Pharmacy and Chemistry passes the twenty-fifth year of its organization and continues, in a second quarter century, one of the most notable works for scientific medicine ever accomplished by any organized group. It is significant that several of the original members of the body have maintained their connection since its inception and that the secretary, W. A. Puckner, has rendered continuous service as a full-time officer for the body from the first. The Council could not have achieved what it has, without the support of the medical profession of our country. Thus, with the establishment of the Council, the advertising of medicinal preparations in the Journal of the American Medical Association was limited to those products that had been passed by the Council. The same rule has been applied to the other publications of the Association, and finally every state medical journal, except those of Illinois and New York, followed this lead. A considerable number of journals not controlled by medical societies also give their support to the Council's work. The medical profession must support the Council or its work will be futile. The members of the Council serve without remuneration and the Journal of the American Medical Association tenders to them the thanks and appreciation of the profession that they have so well served. (Jour. A. M. A., February 8, 1930, p. 413.)

**VITAMIN D IN TUBERCULOSIS.**—A recent investigation of the role of vitamin D in the management of tuberculosis indicated that the administration of viosterol did not produce any detectable acceleration of the healing process. These observations suggest that such value as cod liver oil possesses in tuberculosis does not depend on its relatively high concentration of vitamin D. These studies emphasize the fact that cod liver oil possesses more than one claim to nutritive value, for it is even richer in vitamin A than in the antirachitic factor. In spite of the enormous antirachitic potency of viosterol, this material is by no means to be regarded as therapeutically equivalent to cod liver oil. (Jour. A. M. A., February 8, 1930, p. 414.)

**ANTISTREPTOCOCCUS SERUM OMITTED FROM N. N. R.**—The Council on Pharmacy and Chemistry reports that for some years it has been questioning the value of antistreptococcus serum preparations. In



1928 the Council decided that unless new and favorable evidence became available, all streptococcus serum preparations would be omitted from New and Nonofficial Remedies with the close of 1929. Since no such new evidence has become available, the Council has omitted all antistreptococcus serum preparations as follows: Antistreptococcus Serum (Gilliland Laboratories, Inc.); Antistreptococcus Serum, Polyvalent (Lederle Antitoxin Laboratories); Antistreptococcus Serum (Eli Lilly & Co.); Antistreptococcus Serum, Purified and Concentrated (Lilly); Antistreptococcus Serum, Polyvalent (H. K. Mulford Co.); Antistreptococcus Serum (National Drug Co.); Antistreptococcus Serum (Parke, Davis & Co.); Antistreptococcus Serum-Squibb. (JOUR. A. M. A., February 15, 1930, p. 484.)

**THE HAZARD OF USING NONACCEPTED DRUGS.**—Recently the A. M. A. Chemical Laboratory published a report on Bichloridol collapsules indicating that only from one tenth to one fifth of the amount of mercuric chloride claimed to be present was actually discovered. The results of the A. M. A. Chemical Laboratory has received independent confirmation. Apparently most of the mercuric chloride had reacted with the lining of the collapsule and was not in the medicament itself. This product has been administered to patients by physicians who thought that they were giving a certain dosage of mercuric chloride, whereas the patient received only from one tenth to one fifth of the dose he should have had. In 1925, the Council on Pharmacy and Chemistry declared Bichloridol nonacceptable for New and Nonofficial Remedies. It is safer to follow the Council! (JOUR. A. M. A., February 22, 1930, p. 563.)

**VIOSTEROL OR IRRADIATION.**—If rickets is the disorder that is to be cured or averted, both cod liver oil and irradiated ergosterol, the latter now available as viosterol in oil 100 D, act as specifics; so that irradiation with artificial light sources is not essential though its effectiveness to accomplish the same ends deserves emphasis. Viosterol also serves to promote the proper metabolism of calcium and phosphorus in other disorders. On the other hand, irradiation with ultraviolet rays doubtless produces a variety of physiologic effects about which we are still largely uninformed. (JOUR. A. M. A., February 22, 1930, p. 580.)

## BOOK REVIEWS

**VARICOSE VEINS.** With Special Reference to the Injection Treatment. By H. O. McPheeters, M.D., F.A.C.S., Director of the Varicose Vein and Ulcer Clinic, Minneapolis General Hospital, etc. Illustrated with half-tone and line engravings. Second revised and enlarged edition. Philadelphia: F. A. Davis Company. 1930. Price \$3.50.

The second edition of this book is a considerable improvement over the first edition. The author has enlarged on some phases of the work and has added a few illustrations. His technic for the occasional user of this method of treatment is a bit elaborate and it is very doubtful if one should inject cases which have had bacterial phlebitis. Cases under treatment which show an unusual amount of reaction might also have subsequent injections without materially adding to the hazard.

It is a book of thorough scope giving a bibliography well worth having. J. G. H.

**THE SURGICAL CLINICS OF NORTH AMERICA.** (Issued serially, one number every other month.) Volume 10, No. 2. (Chicago Number, April, 1930). 252 pages with 72 illustrations. Philadelphia and London: W. B. Saunders Company. Per clinic year (February, 1930, to December, 1930). Paper, \$12.00. Cloth, \$16.00.

This issue contains 252 pages and comprises articles from the clinics of fifteen of Chicago's outstanding surgeons. A wide variety of subjects is presented, many of the articles being liberally illustrated.

**ANTE-NATAL CARE.** A Practical Handbook of Ante-Natal Care and of the Abnormalities Associated with Pregnancy. By W. F. T. Haultain, O.B.E., M.C., B.A., M.B. (Camb.), F.R.C.S.E., and E. Chalmers Fahmy, M.B. (Edin.), F.R.C.S.E. New York: William Wood & Company. 1929. Price \$2.25.

This little handbook on prenatal care is a masterpiece in its field. It is wide in its scope, concise in composition, yet withal highly instructive and interesting to read. Practically every condition or situation that is met in conducting antenatal care is briefly summarized with respect to diagnosis and treatment. Outstanding chapters are written about pelvic measurements and the management of intercurrent disease during pregnancy.

This work should be a reference requirement in every medical school, and certainly in the private library of every physician who comes in contact with obstetrical patients, particularly the general practitioner. The authors have carefully avoided overlapping other standard works and limit their efforts discreetly to a field in which there is a long recognized lack of material readily available. A spirit of conservatism prevails throughout the text development and lends inspiration as a reward for its readers. R. R. W.

**THE MECHANISM OF THE LARYNX.** By V. E. Negus, M.S., London, F.R.C.S., England. Junior Surgeon for Diseases of the Throat and Nose, King's College Hospital, London, etc. With an introduction by Sir Arthur Keith, F.R.S. St. Louis: The C. V. Mosby Company. 1929.

In abbreviating the title of his book Dr. Negus has shown the characteristic reticence of a true scientist. From the title one might expect that a monograph of one hundred pages would exhaust the subject. Instead, there are over five hundred pages, exclusive of fifteen tables and voluminous illustrations, with such a wealth of interesting and instructive material that it reads like a novel.

Every possible phase of the larynx is thoroughly analyzed from the origin of a primitive organ throughout the various stages of development in the evolution of the animal kingdom, to the final, and somewhat degenerative, changes found in man.

The author shows that the all-important function of the larynx is to prevent the entrance into the pulmonary air tract of any substance except air, and, when we stop to consider that these two life-carrying channels cross and open into each other, yet each must function separately and independently, it is easily seen that this is probably the most intricate system of mechanics known to man. Certainly, he has never been able to duplicate such a valvular system. The interrelation of olfaction, respiration, deglutition and phonation is clearly shown in this wonderful study of comparative anatomy.

Dr. Negus was fortunate indeed to have the co-

operation of such men as Sir Arthur Keith, Sir St. Clair Thomson, Professor J. E. S. Frazer, Mr. T. B. Layton, the late Dr. Sountag, and several other leading scientists. It is also interesting to note the help that he derived from his immediate family.

This book is a striking example of what the concentrated efforts of one man, working upon one problem, can accomplish. Surely our scientific problems must be approached in this manner if we are to advance in the field of medicine. It cannot be said that any medical library is complete without this valuable book.

O. J. D.

**UROLOGICAL NURSING.** By David M. Davis, M.D., Assistant Professor of Urological Surgery, University of Rochester, etc. Illustrated. Philadelphia and London: W. B. Saunders Company. 1929. Price \$2.25.

The anatomy and physiology of the urogenital tract and a discussion of urogenital diseases precede several chapters dealing with preoperative and postoperative nursing. Importance of fluid intake, collection of specimens, cleanliness of the patient, and constant watch by the nurse for signs of hemorrhage and infection are dealt with. Articles and equipment used by the urologist in diagnosing and operating, anesthetics, and the technic of kidney functional tests are discussed. The last chapter treats broadly of urological procedures such as subcutaneous infusions, catheterization, instillation, irrigations, cystoscopy and major and minor operations on the urogenital tract.

The book is compact and well written and fills a need for instruction to nurses in this surgical specialty.

N. S. M.

**THE SCIENCE OF NUTRITION SIMPLIFIED.** A Popular Introduction to Dietetics. By D. D. Rosewarne, M.R.C.S. (Eng.), L.R.C.P. (Lond.), Late Honorary Actino-Therapist and Assistant Physician, City of London and East London Dispensary, Specialist Pathologist, R.A.M.C. etc. Author of "A Text-book of Actinotherapy." Illustrated. St. Louis: The C. V. Mosby Company. 1929. Price \$3.50.

This book was written for the lay public. Its avowed purpose is "to provide for an ordinary person, who has little or no scientific knowledge, a simple but complete statement of everything that is necessary for the proper understanding of the question of diet." The book is an attempt to explain in simple, understandable language the science of nutrition. It is in no sense a book on dietetics.

The fourth part, which is headed "Dieting," fills the last fifty pages of the book. No attempt is made to give a practical idea of how to go about the choice of foods for a normal diet. The lay mind will be greatly interested in reading about the physiological facts on which proper nutrition is based, but we believe it would be very much more interested in the transforming of these facts into actual dietaries. However, the author is only a physician, not a dietitian.

W. H. O.

**MEDICAL STATE BOARD QUESTIONS AND ANSWERS.** By R. Max Goepf, M.D., Professor of Clinical Medicine in the Graduate School of Medicine, University of Pennsylvania. Sixth edition, thoroughly revised. Octavo volume of 754 pages. Philadelphia and London: W. B. Saunders Company. 1929. Cloth, \$6.00 net.

This edition, in keeping with the traditions of its

predecessors, covers its field in a satisfactory manner. It very well serves its purpose of affording a concise review of the broad field of medicine and surgery. It gives the applicant for licensure an idea of the questions asked and the type of answer that is acceptable. This is the best answer to the establishment by all state boards of health of practical examinations by hospital groups, thus safeguarding the licensing of efficient practitioners of medicine.

E. P. N.

**CLINICAL OBSTETRICS.** By Paul T. Harper, Ph.B., M.D., Sc.D., F.A.C.S., Fellow of the American Association of Obstetricians, Gynecologists, and Abdominal Surgeons, and of the New York Obstetrical Society, etc. Illustrated with 84 plates of engravings (250 figures) with legends and charts. Philadelphia: F. A. Davis Company. 1930. Price \$8.00.

As the title implies, this book is one of purely clinical nature and has a definite place in both undergraduate teaching and postgraduate study. At practically no place throughout the whole six hundred and fourteen pages of the text does the author allow the reader to wander far from the examining table or bedside. For the lone practitioner it is almost a consultant in person. The author's experience is clearly evident by the shrewd anticipation of the reader's questions and problems. The chapters on the mechanism of labor, normal delivery, forceps extraction, and breech extraction are highly commendable. One is impressed with the discussion of birth canal injuries and episiotomy, but equally disappointed in the meager description of their repair and after-care. The attitude assumed concerning straining down in labor is most admirable, and at once one realizes that the author's opinions are not overshadowed by his contemporary, Potter.

An opening for criticism is made in a few instances, viz.: concluding that overdistention is not a source of inertia; advocating the use of the bag in concealed hemorrhage with an undilated cervix; using intra-uterine douches after curettage in incomplete abortion; depending too much upon mercurochrome for vulval asepsis administering proprietary hemostatics in uterine hemorrhages; and supporting the use of repeating half cubic centimeter doses of pituitrin for the induction of labor.

The elaboration on puerperal sepsis and toxemias of pregnancy is masterful, but blood transfusion is a more important therapeutic measure in both types of cases, particularly in the convalescent period, than the writer implies. Every fourth-year medical student should be required to read the chapters dealing with the new-born child and prenatal care. A complete system of an extended postnatal care would add immeasurably to the usefulness of the book.

The author writes with a high degree of enthusiasm but in his zeal to be accurately followed is a victim of many pitfalls of paragraph development and language construction, notably absent in such texts as those by Williams and by Graves. The misuse of italics, dashes, and quotation marks may defeat their very purpose; and the rules governing the dangling preposition and intransitive verb are not strictly observed. Technically speaking the interchangeable use of *ovum* and *fetus* is incorrect, as well as *abortion* and *miscarriage*. A synopsis is always an adjunct but is more advantageously placed at the beginning of individual chapters, in preference to combining it with the table of contents.

The book is a refreshing one and bids fair to as-



sume a standard place on the reference shelf of obstetrics.  
R. R. W.

**A MANUAL OF DISEASES OF THE NOSE, THROAT AND EAR.** By E. B. Gleason, M.D., LL.D., Professor of Otology, Medico-Chirurgical College Graduate School of Medicine, University of Pennsylvania. Sixth edition, thoroughly revised. Philadelphia and London: W. B. Saunders Company. 1929. Price \$4.50.

This manual, which is the sixth edition, is a very useful handbook on the subject. It is particularly useful for the student and general practitioner. It compiles many of the fundamental principles of otolaryngology and gives particular attention to technic and examination. The book also contains many useful formulas and their indications.

For the otolaryngologists the text is rather too fundamental in its principles and it contains an insufficient number of references to the literature.

F. K. H.

**CONSECRATIO MEDICI AND OTHER PAPERS.** By Harvey Cushing, Surgeon in Chief of the Peter Bent Brigham Hospital, Professor of Surgery in the Harvard Medical School. Boston: Little, Brown & Co.

This is a series of fourteen addresses, delivered in the period of 1904 to 1927 inclusive, and distributed geographically through the United States, Scotland and England. If the geographic distribution seems wide, far wider and more varied are the themes discussed. Subject matter includes two important surgical addresses; problems of the medical school; problems of the medical library; the value of the historic vision in medicine; the value of books and literature to the medical man; the British Medical Corps in France; a sympathetic study of his friend, William Osler, the man; and the emancipators, Lister and Lincoln.

Seemingly there exists a tendency among medical men to sink into a mental rut, or at least to permit the mind to concern itself so constantly and so intently upon things medical that frequent and vital contacts with extra-medical culture are more honored in the breach than the observance. If there be found among the practitioners of Missouri any whose intellectual horizons are slowly but steadily contracting, it is suggested that they delightfully revivify themselves by browsing through these intensely interesting and stimulating observations of this master craftsman. In this use of the term master craftsman some reader may feel that the writer has thus classified Cushing by virtue of his well-known surgical achievements. As a matter of fact the term has not been thus employed, significantly appropriate though it be; rather does it refer to Cushing as the man of letters, who in 1925 received his accolade when awarded the Pulitzer prize for his remarkable biographic study of Sir William Osler.

If browsing through "Consecratio Medici" and its thirteen fellows would so stimulate the reader that he would be drawn compellingly into a thoughtful reading of Cushing's study of Osler, it may be confidently stated that the reward will be assured and will be found abundantly rich.

N. W. S.

**DISEASES OF THE BLOOD.** By Paul W. Clugh, Associate in Clinical Medicine, Johns Hopkins University. Harper's Medical Monographs. Harper & Brothers, Publishers, New York and London. 1929. 310 pp.

This is one of a series of monographs, some already published, others to be issued later. It is a monograph according to the best definition,—a systematic exposition, much circumscribed and yet in detail.

Not more than two decades ago there was a widespread belief that hematology was on a very firm basis and that a large part of what could be known was already known. With increasing knowledge we have learned that the depths have by no means been sounded; that hematology, like so many other branches of medicine, is a field which we have just begun to explore.

The very nature of the book, its monographic form, precludes the possibility of including much controversial material. The author has had to take a stand in questions of this sort. He has done so and has shown judgment and a philosophical attitude. His discussion of some of the newer problems, such as the Schilling classification, the reticulo-endothelial system, liver diet in pernicious anemia, may be considered inadequate by some enthusiasts but it is always temperate and judicious. The chapter on the technic of blood examination is well done.

L. S.

**MODERN METHODS OF TREATMENT.** By Logan Clendenen, M.D. Professor of Clinical Medicine, Lecturer on Therapeutics, Medical Department of the University of Kansas; Attending Physician, Kansas City General Hospital; Physician to St. Luke's Hospital, Kansas City, Missouri. With Chapters on Special Subjects. By H. C. Anderson, M.D.; J. B. Cowherd, M.D.; H. P. Kuhn, M.D.; Carl O. Rickter, M.G.; F. C. Neff, M.D.; E. H. Skinner, M.D.; and E. R. DeWeese, M.D. Third edition. St. Louis: The C. V. Mosby Company. 1929. Price \$10.00.

The book was planned to furnish in one volume "an outline of all the methods of treatment used in internal medicine." Its value is greatly enhanced by the accessibility of its contents. Few physicians will fail to find use for it. The diction is forceful, clear and expressive. The style is easy, rather conversational at times, direct and effective.

The field is necessarily large and for the author to discuss at length all moot questions would carry the work far beyond the confines of a single volume. It would manifestly be impossible to treat all subjects in terms satisfactory to every one, so doubtless some readers will find statements with which they do not agree. But the object of the book is to furnish information in readily available form setting forth details that the physician does not ordinarily memorize but feels the need of from time to time. The reader who uses the book with this purpose will not be disappointed.

Extended discussion of subjects not yet settled cannot of course find place in such a book, for example, the use of digitalis in pneumonia. One feels, however, that the author might have been a bit less positive in directing the routine use of digitalis in pneumonia. A clearer differentiation between congestive heart failure and tachycardia incident to auricular fibrillation as separate indications for digitalis, would better clarify a troublesome subject. One is surprised to observe that coronary occlusion finds no separate place among conditions grouped as "angina pectoris."

It is easier to comment than to construct. To point out a few faults is far less time consuming than to begin an enumeration of the book's virtues. He must indeed be a brave critic who would presume to find many defects.

D. L.

# THE JOURNAL

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### ORIGINAL ARTICLES

#### MEDICINE, A PROGRESSIVE SCIENCE\*

PRESIDENT'S ADDRESS

T. W. COTTON, M.D.

VAN BUREN, MO.

In studying the history of medicine certain salient features compel attention, foremost among them being that medicine is a very old profession. When Solomon queried, "Why shouldst thou die before thy time?" and King Hezekiah, who was reported as being "sick unto death," had a "fig poultice prescribed for his boil," medical science was already old. Fully two thousand years before these events the Chinese are shown by history and tradition to have been active in the use of methods to relieve distress. So far as we have been able to learn, it appears that medicine is as old as human intelligence itself for in every age, race and creed there has been some form of reverence for the power of medicine. Human frailties have attended the race apparently from the beginning. Fortunately, sympathy, the milk of human kindness, has likewise existed since the creation of man and has tended at least in a measure to remove the bitterness and mitigate the suffering incident to existence on this earth.

It also appears that most people are in some measure disabled. According to one observer, only 2 per cent of us are completely well, while the other 98 per cent are never permitted to enjoy the pleasure of perfect, glorified health and vitality. There are the fat, the flabby, the pale, the thin, the lazy and indifferent, the nervous, the irritated, none of whom are physically just as they would wish to be. The average American family expends \$132.68 annually in its efforts to keep even as well as it is.

The earliest period of which there is record portrays man groping in darkness in an effort to discover the nature, cause and treatment of

disease. At one time it was the generally accepted theory that disease was due to "evil spirits" and being possessed of a demon was considered a mark of special divine disfavor. Job's three "friends" appeared to have shared this idea and their accusations led Job to utter the laconic rejoinder, "Miserable comforters are ye all." At another time all human ills were thought to be caused by "humors." Thus down through the ages successive notions were advanced in the effort to grasp the medical light that very slowly unfolded itself.

Our knowledge of the anatomy, physiology and pathology of the human body has been worked out by long, tedious and exceedingly laborious processes, which dragged along through the centuries with only here and there a slight ray of light penetrating the darkness of medical ignorance. Hippocrates, for example, refused to accept the theory of divine infliction as a logical cause of disease, and Michael Servetus, a Spanish physician who lived nearly four hundred years ago, also refused to share the medical superstitions of his day. Long before Harvey gave the world his wonderful discovery of the circulation of the blood, Servetus wrote: "The vital spirit is generated by the mixture in the lungs of the inspired air with the subtly elaborated blood which the right ventricle sends to the left. The communication between the ventricles however, is not through the midwall of the heart but in a wonderful way. The fluid blood is conducted by a long detour from the right ventricle through the lungs where it is acted on by the lungs and becomes red in color, passes from the arterio venosa into the vena arteriosa, whence it is finally drained by the diastole into the left ventricle."

A twentieth century anatomist giving a brief description of the process of blood aeration would find his own description very similar to that given by Servetus four centuries ago; and the investigator of this day and age who could announce a discovery of equal magnitude would gain the plaudits of the entire world as a distinguished scientist. Poor Servetus met a far different fate. Unfortunately, he criticized

\* Read at the 73rd Annual Meeting of the Missouri State Medical Association, Hannibal, May 12-15, 1930.



some religious dogmas of his day and because of this was prosecuted as a heretic, condemned and, with his books, burned at the stake.

Most every profession has had its pioneers who surveyed the ground and blazed the way for succeeding generations. Medical history is particularly rich in stories of pioneers of the very highest type of devotion to their profession. The list of medical martyrs, men who were so intensely interested in research that they were willing to risk all for this cause, includes many, very many, whose lives were the price paid for the medical knowledge that enables us to live free from much of the danger and distress of former days. You will recall how the leading character in Scott's "Old Mortality" went from one graveyard to another with hammer and chisel, carving deeper the names of the old Scottish Covenanters which were in danger of becoming illegible in the weather-worn stones. In like manner, the 93,000 members of the American Medical Association should perpetuate as a priceless heritage the memory of the medical pioneers who by their untiring devotion, ceaseless activity and indefatigable energy contributed abundantly to the glory and usefulness of our calling. "Death has many doors to let life out," but these men have closed some of those doors. Theirs was a heroism that would not flinch in the face of death itself.

Such a hero was Dr. Jesse W. Lazear, of yellow fever fame, and his co-worker, Dr. James Carroll. Dr. Lazear gave his life, and Dr. Carroll all but gave his, in making possible the eradication of this terrible pandemic disease which decimated the City of Philadelphia in a single season. Gen. Leonard Wood said, "Control of yellow fever saves more lives every year than were lost in the Cuban War."

Dr. Thomas B. McClintock lost his life studying Rocky Mountain fever and so did Dr. Howard Taylor Ricketts who proved by personal experimentation that Rocky Mountain fever is conveyed to man from an infected animal by the bite of a tick. Dr. Daniel A. Carrion studied verrugas and died of it. Both Dr. Yersin and Dr. Hermann Muller gave their lives in the study of bubonic plague. Drs. Raikes and Wray, Government medical officers, died of infection from the same disease contracted while performing postmortems. Dr. Tito Carbone and Dr. Allen McFayden were martyrs to Malta fever. Dr. J. Everett Dutton died of relapsing fever while investigating that disease. Dr. John Herbert Wills died of glanders. Dr. Zampagani died of infection contracted while studying spotted fever. Many others who have made the supreme sacrifice in an effort to advance medical science might be mentioned. There are no less than 150 martyrs

who suffered indescribable agony and finally forfeited life itself as a result of working with X-ray and radium. One, Dr. McDowell Botts was my personal friend.

Diseases incident to their profession are not the only danger to which medical men are exposed. More than one physician has lost his life while administering to the needs of the insane. Among these may be mentioned Dr. James Marcoe and Dr. Samuel A. Johnson, the latter of Springfield, Mo., who was well known to many of us.

In over 37 years of personal contact with medical men I have never witnessed an instance in which a physician refused to answer a professional call for fear of danger to himself. The physician, hearing the call of distress, hastens to its relief without hesitating to inquire, "Is this visit free from personal danger to me?" Whereas the lawyer tells us to come to his office the next day, the paper hanger promises to come in a day or two, and the plumber appears a week later, the physician responds to a call immediately. "Greater love hath no man than this, that he lay down his life for a friend."

In looking up the early history of medicine, it is also interesting to note that some of our drugs and chemicals have been in use a long time. We disinfect our rooms with burning sulphur, and so men did before the time of Homer. The value of castor oil was known for ages in the West Indies before it was made known in Europe about 150 years ago. Aloe as a purgative was employed before the time of Pliny and male fern for tapeworm dates back to the time of the early Greeks and Romans. The employment of mercury by inunction and fomentation which our medical men still regard with satisfaction, appears to go back to the time of the Crusades and, it is said, can be traced to India as far back as the ninth century.<sup>1</sup>

With the thought that medicine is truly a progressive science, we pass from this brief résumé of its history to the outstanding achievements of modern medicine through which so many of the fatal diseases of former days, such as smallpox, yellow fever, typhoid fever, diphtheria, and malaria, have been conquered. That most of these have been overcome in the last half century indicates that more real advancement toward the relief of human suffering has been made in this century than in all the preceding ones. Yet our accomplishments, splendid as they have been, still leave much for study and research. Cancer is unconquered and the death rate from heart disease is appalling.

This is an age of prevention. If we would

1. Gower's Lectures.

exercise a little more precaution and protect our children from infections we could save much cardiac impairment. The same holds true for tuberculosis, essentially a disease of childhood since nine out of every ten children have been infected by the tubercle bacillus before they reach the age of twelve. The deaths of nearly half the people who die before the age of thirty five are due to some preventable disease. In discussing prevention we must necessarily consider sanitation, which is essential in rural Missouri, as everywhere, to the health of the population and to the prevention of disease.

Ambassador Walter H. Page stated that the largest problem which faces American civilization today is the building up of country life. It was said of Great Britain that her small town and country life stabilized her world empire. I think it was Roosevelt who expressed the belief that the small American farmer who owns and tills his acreage is essential to American ideals and American perpetuity. Rome told with pride how her dictators came from the plow. Realizing the importance of country life, I desire to invite your attention to rural sanitation. This is rarely up to a reasonable standard.

In the early days of railroad construction it was well known that a new road made or unmade a town. A new station would be located and town lots plotted near by. The first building would be the depot, and the rest of the town would build up on either side of it. This was all right until the development brought the shipping of live stock. In warm weather the pens in which the live stock was confined, sometimes for several hours or even for a day or two, became exceedingly filthy. The railroads are not wholly at fault for this, but they should cooperate with the citizens in removing this nuisance a sufficient distance to meet reasonable sanitary requirements.

An even greater menace to the health of rural Missouri is the surface water-closet. This often is not only poorly constructed, but also neglected, thus constantly threatening the health of those who dwell in its vicinity.

When Cervantes made Don Quixote exclaim after an unfortunate event in which he lost several teeth, "Alas, a tooth is more precious than a diamond," he was no doubt indulging in a pleasant exaggeration, but in the light of modern preventive medicine we can accept that statement as literal truth. Teeth are indeed more precious than diamonds, and he who would swap his thirty-two teeth for a like number of diamonds of any carat would be foolish indeed.

Investigations show that 90 per cent of

school children have one or more decayed teeth and that 20 per cent have teeth in a serious state of decay. In my own County of Carter a careful examination of all school children disclosed the fact that 30.2 per cent had one or more carious teeth. In view of the fact that the cause of dental caries is well known and is at least theoretically preventable, every effort should be made to remedy this situation.

Osler was authority for the statement that "bad teeth are causing more misery in this world than intoxicating liquor." The importance of preventive dentistry is indicated by the statement that sixty-nine cities in the United States employ dentists to look after their school children. This appears to be a fertile field which invites cultivation in this state. It is one of the important factors that will help to add the fifteen years which, according to Professor Fisher, can be added to the present span of life by the proper application of preventive medicine.

Under the laws of Missouri live stock is very well protected from disease. There is urgent need for attaining the same consideration for human beings, especially children. I think it was Dr. Joyner who said, "To me the tragedy of this earth is a diseased child. The natural inheritance of a child is joy and strength and growth and freedom. He is robbed of it all by disease." The physician, as well as the parent and teacher, should regard himself as the custodian of that priceless and divine inheritance, our children.

And now, ladies and gentlemen of the Missouri State Medical Association, on retiring from office as your president, I would be ungrateful indeed did I not take this occasion to return to you my most sincere, profound, and inexpressibly grateful appreciation of the confidence which you have reposed in me. In the language of another, I can only wish you that greatest of Oriental blessings, "may you die among your kindred; may no sorrow distress your days, no grief disturb your nights, but peaceful, restful be your slumbers. May your days be lengthened out to many years to enjoy the richest blessings this world affords, and as you travel along life's pathway may Time lay his hand upon you, not harshly but gently like as a harper who lays his open palm upon his harp strings not to deaden the sound, but to soften their vibrations. And when length of years makes you tired of earthly joys and the curtain of death gently closes round your last sleep of human existence, may the angels of God attend you and see that your last expiring lamp of life receives not one rude blast to hasten on its extinction."



**OUR OBVIOUS SHORTCOMINGS\***

PRESIDENT-ELECT'S ADDRESS

W. C. GAYLER, M.D.

ST. LOUIS

I am not going to speak of the life of self-sacrifice and devotion that the doctor leads. It is not my purpose here to give deserved praise to the unselfish physician who must still worry about the mortgage on his home after thirty years of drudgery and service to his community. I am going to speak of the profession as a whole,—of our imperfect adjustment to the progress that has taken place in medicine in the last thirty years.

There are two causes for the advance that medicine has made during our lifetime. In the first place, we live in an age of activity and development. Medicine could not advance in a stagnating world, but in this age of progress it can also take its place in the general march forward. In the second place we have become skeptics. We no longer blindly accept the opinions of the leaders of the profession but investigate for ourselves. The old medical beliefs are no longer sacred merely because they are old.

Most of the old customs or fads, or "precedents," as the lawyers would call them, have either been rationalized or rejected. There are, however, a few of the undesirables left. Unfortunately, these have been retained in medical education.

We now have 72 medical schools in America, with rigid premedical educational requirements, full time teachers, and adequate equipment, buildings and endowment. Everything that a far sighted man might have dreamed about years ago seems to have been realized. At first glance this would seem to be a very satisfactory state of affairs. However, we cannot feel so satisfied when we observe that there is today a distinct shortage both of physicians and of medical schools.

The number of unqualified individuals practicing medicine gives us reason to believe that there is a shortage of physicians. There are backache specialists who sell corsets, and there are eye specialists and foot specialists who have had no medical training. Nonmedical persons are doing our X-ray and laboratory work, nurses give anesthetics and druggists of the chain store type encroach on the practice of medicine. Large sections of Missouri have no physician, or have just one old man who ap-

parently will have no successor when he retires. Members of cults are doing appendectomies, tonsillectomies, are practicing obstetrics, and in other ways are acting as class B physicians.

In surveying our medical educational system we note certain difficulties which might explain the shortage of first-class physicians. There are not enough schools to satisfy the demand and the schools that we have are too small. Despite these inadequate facilities we accept too many freshmen and are forced to eliminate a number of them after matriculation. The remaining students are compelled to work at top speed, often from early morning until late at night, in order to meet the requirements. The disappearance of the slow, dignified, contemplative method of study is not entirely due to the fact that there is now so much more to learn than in former years. It may be partly explained by the fact that this mad rush lasts only eight months of the year after which the universities shut down completely for four months. If the rest of the world can work in summer it cannot be too hot to study. Nevertheless, we continue to close our schools during the summer months simply because it is an old custom. We are forced to wonder whether such educational methods are in keeping with medical progress.

605 Wall Building.

**THE CONSERVATIVE TREATMENT OF ECLAMPSIA\*<sup>1</sup>**

LEE DORSETT, M.D.

ST. LOUIS

In presenting this subject I do not intend to discuss the etiology or pathology of eclampsia but rather to discuss the treatment of the convulsive type of eclampsia as begun by me in 1923. We have had under observation to date some 190 cases treated by this method and the maternal mortality is now 7 per cent. This series of cases is taken from my own private practice, from the St. Louis Maternity Hospital and from the St. Louis City Hospital.

We have come to the conclusion that the conservative treatment gives the best results in the great majority of cases and that cases treated by intramuscular injection of magnesium sulphate and the intravenous use of glucose show a lower maternal mortality than those treated by either the Stroganoff or the

\* Read before the St. Louis County Medical Society, January 8, 1930.

\* Read at the 73rd Annual Meeting of the Missouri State Medical Association, Hannibal, May 12-15, 1930.

<sup>1</sup> From the Department of Obstetrics and Gynecology of Washington University School of Medicine.

Dublin methods. After careful study of the cases we have seen and treated during the last six years we have observed that quicker and better results were obtained by controlling convulsions with magnesium sulphate and using glucose for diuresis than by the use of any other method. The following treatment is now routine with us:

1. Magnesium sulphate, 10 to 15 cc. of 25 per cent solution and 5 to 10 cc. thereafter until the convulsions are controlled. (Injections are made deep into the gluteal muscle.)

2. Colonic irrigation.

3. Gastric lavage until the water returns clear; then leave 60 cc. of a 50 per cent solution of magnesium sulphate in the stomach for its purgative effect. When the stomach is empty, 50 cc. of a 10 per cent solution of Karo syrup is introduced into the stomach by means of a nasal tube. This is continued until the patient has received about 250 cc. When the patient becomes rational fruit juices and water are given.

4. The intravenous injection of from 500 to 1000 cc. of a 10 or 20 per cent solution of glucose twice daily. We formerly used a 10 per cent solution of glucose but now believe that the 20 per cent solution is preferable. Normal saline, bicarbonate of soda and Ringer's solution are contraindicated.

5. If the patient responds to treatment labor is induced by means of a modified Vorhees' bag. If she does not respond cesarean section is performed in selected cases. In this series only nine cesarean sections were performed. If the patient is in labor it may be hastened by small injections of pituitrin and delivery made with low forceps. Under no circumstances should either manual dilatation of the cervix or high forceps be tried.

One or two injections of magnesium sulphate will usually control the convulsions in those cases that have had only one or two attacks. On the other hand, cases that have had a large number of seizures before this treatment could be instituted have been extremely difficult to manage.

In none of the cases has phlebotomy been employed nor has morphine, chloral, chloroform, or Veratrum viride been used. Hot, moist packs for a period of from 15 to 30 minutes are beneficial, tending to quiet and relax the patient and possibly increase the elimination of toxins through the skin.

These cases are first a medical problem, therefore this treatment should be carried out before any thought is given to the method of delivery. Under no circumstances should delivery be hastened, except in the few selected

cases where cesarean section is considered, as before mentioned, and when eclampsia is complicated by a contracted pelvis, placenta previa, or any condition requiring cesarean interference.

Several cases were treated too conservatively because we did not induce labor immediately after controlling the convulsions. As a result, there was a repetition of the convulsions or, when labor was induced some time after the convulsions had been controlled again, the fetus was found dead and in most instances macerated. This experience leads me to conclude that labor should be induced in all cases just as soon as the convulsions have been controlled. I am firmly convinced that delay in the induction of labor tends to damage the kidneys and endanger the patient's life.

Considerable care should be exercised in delivering a case too soon after the bag has been expelled. Allow the patient to continue in labor in order to obtain effacement of the cervix; version and high forceps should never be considered unless the cervix is completely dilated. I am absolutely opposed to high forceps unless in the hands of a skilled obstetrician. I prefer internal podalic version. Mid-forceps or low forceps are advisable,—preferably low forceps as they are less dangerous to the mother and the child. There is generally too much haste in the delivery of the child, and I cannot urge too emphatically that it is better to let the patient deliver spontaneously than to hasten the process by the application of the forceps too soon.

Postpartum shock is a condition to be guarded against. It is extremely important that the blood pressure be taken at ten minute intervals for at least one hour after delivery in order to be prepared for a sudden collapse.

The postpartum treatment is of vital importance for the patient requires constant care and close observation. The diet is restricted to liquids. Forced fluids and saline purgatives and enemas are important.

#### CONCLUSIONS

1. A conservative method should be first tried in all cases of eclampsia.

2. The intramuscular injection of magnesium sulphate is safe. It will control and in most cases stop the convulsions of eclampsia.

3. The intravenous use of glucose is of great benefit in bringing about diuresis.

4. Cesarean section is applicable to a very limited number of cases.

5. The accouchement force is absolutely contraindicated.



## THE SYMPTOMATIC URETER\*

J. E. STRODE, M.D.

HONOLULU, T. H.

Because of the diversity of symptoms produced by the presence of pathologic conditions in the ureter, this organ is frequently lost sight of and many people are now adorned with operative scars, principally over the appendix and pelvic regions, who might have been relieved of their symptoms had a proper urologic examination been made.

Before the perfection of the cystoscope and its accompanying armamentarium no reliable means was at hand by which information could be obtained concerning the ureter, and only since Hunner has persistently called attention to the frequency of ureteral strictures has the organ in question received its deserved attention.

A few of the older urologists are still skeptical concerning the prominent role the ureter is assuming in the causation of symptoms, but from a perusal of the current literature and from personal observations I am of the opinion that the publicity is deserved. For all practical purposes the only condition giving rise to symptoms is ureteral obstruction, and this paper will be limited to a discussion of this condition.

Roughly speaking, ureteral obstruction may be classified as that resulting from inflammatory reaction and that due to other causes.

Ureteral strictures are the result of scar tissue formation from inflammation and may be initiated in one of several different ways, i. e.: First, it may be due to an infection of the ureter directly from the urine itself, as occurs in pyelitis, pyonephrosis, etc.; second, it may be hematogenous in origin and secondary to some focus of infection, such as teeth, tonsils, prostate, seminal vesicles or pelvic organs; third, from direct extension of an inflammatory process, as occurs in pelvic infections extending along the broad ligament or secondary to appendiceal infections when occurring over the course of the ureter. That portion of the ureter running through the broad ligament is a very common location for strictures, and it is this segment in which Hunner has met with the condition most frequently; fourth, they may be congenital due to developmental abnormalities.

Calculi of the ureter frequently accompany strictures. Earlier writers were of the opinion that the calculi were primary and the strictures resulted from irritation. More recent observers, particularly Hunner, have advanced

the theory that the stricture was primary, that a deposit of urinary salts occurred due to stagnation, and ultimately a stone was formed. Both processes probably occur.

The relation of pyelitis to stricture is also a moot question,—as to which one is the primary offender. The frequency with which pyelitis is cured when proper drainage is secured either through an indwelling catheter or through dilatation of a strictured ureter is very suggestive evidence of the stricture being the primary cause.

Tuberculosis of the kidney is very apt to give rise to strictures of the ureter. They are generally multiple and clinically are only important from a diagnostic viewpoint. Primary tumors of the ureter are extremely rare. Secondary deposits from tumors of the kidney occur more frequently. These conditions will not be considered in this discussion.

Anomalous renal vessels are a fairly common cause of obstruction of the ureter. Recently, while observing Hunt, of the Mayo Clinic, operate on a case of hydronephrosis he stated that it was one of the most common causes of that condition.

In 1910 Eisendrath and Strauss stated that anomalous arteries occur in 21 per cent, and in Quain's anatomy it is stated that they occur in about 20 per cent of all kidneys. In a paper delivered before the meeting of the Detroit branch of the American Urological Association in 1927 Burr remarked that he found aberrant vessels in 20 per cent of cases examined,



Fig. 1. Normal pyelo-ureterogram showing the physiologic areas of narrowing and widening of the ureter. (See text.)

\* Read before the Honolulu (Hawaii) County Medical Society, February 1, 1929.

## SYMPTOMS

These patients complain of a great variety of symptoms, though pain of some degree is common to all. The most frequent location of the pain is in the back, in the region of the costo-vertebral angle and may be referred along the course of the ureter. The intensity of the pain varies from that of a severe colic, simulating the pain of the passage of a stone, to the milder degrees of backache. The severity of symptoms depends upon the degree of ureteral obstruction. Frequently there is an associated renal pelvis infection and plugs of mucus and pus may temporarily occlude the ureteral lumen and give rise to severer symptoms. Sudden distention of the kidney pelvis may also occur, as in Dietl's crisis, and is due to the ureter being blocked off, as when it is kinked over an aberrant blood vessel by kidney prolapse. Not infrequently more pain is experienced at night due to poorer drainage of the pelvis in a recumbent position. The reverse may be true when the kidney prolapses in the erect position and tends to return to its normal position when the patient is lying down. Any unexplained abdominal pain, particularly that along the course of the ureters, or backache, should be thought of as possibly due to ureteral pathology.

## DIAGNOSIS

Many of these patients have the attention of the physician called to the source of the trouble by urinary symptoms but it is equally if not more common otherwise. If the ureteral obstruction has resulted in infection then fre-



Fig. 2. Pyelovenous back flow especially seen at inferior margin of superior calyx.

and 80 per cent of these occurred at the upper pole. These anomalous arteries may arise from the main renals, or directly from the aorta or common iliacs. They have also been known to arise from the spermatic, inferior mesenteric or median sacral. Since the majority of anomalous vessels supply the upper pole of the kidney they do not come in contact with the ureter hence cause no symptoms. Those supplying the lower pole cause symptoms only when there is a certain degree of kidney prolapse which carries the ureter down, resulting in its kinking over this vessel.

Increased mobility of the kidney due to lack of support from insufficient perirenal fat and capsule may so kink the ureter as to give rise to marked symptoms. A kidney may occupy a very abnormal position and give rise to no symptoms or, again, a slight prolapse may be productive of severe symptoms. All is dependent upon the amount of ureter fixation and resulting angulation.

Compression of the ureter may occur from a pregnant uterus, from tumors of the pelvic organs or adjacent structures. Postoperative strictures particularly from pelvic operations are not a rarity. These possibilities should be borne in mind and proper urological examinations made to arrive at a complete diagnosis. An embarrassed kidney function, if due to compression of the ureters, may be greatly improved by indwelling catheters and be the one step necessary to the successful outcome of an otherwise well planned operation.

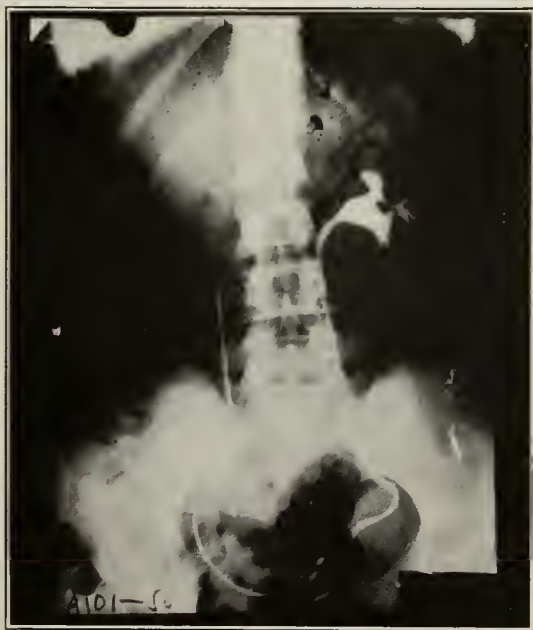


Fig. 3. Marked pyelovenous back flow.



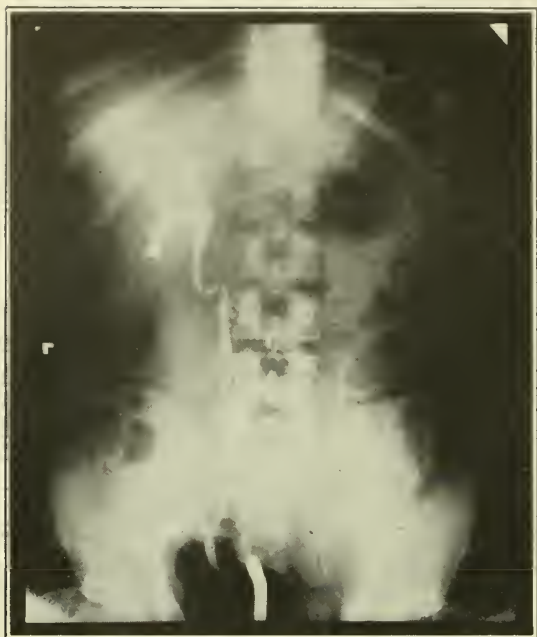


Fig. 4. Patient with history of repeated attacks of pain more intense in McBurney region. Tentative diagnosis of appendicitis until urine examination revealed pus and albumin and ureteral catheterization showed infection limited to the right kidney. Ureteral kink most probably due to aberrant blood vessel.

quency of urination, burning and pain with symptoms of ureteral colic are to be expected. Without infection a correct diagnosis must be arrived at by a careful urological examination. There is no physical finding of any great assistance unless one is able to palpate an enlarged kidney the result of hydronephrosis or infection, or a kidney that is prolapsed. These findings are only suggestive of ureteral obstruction. There may be some tenderness elicited over the kidney area or along the course of the ureter but this is so inconstant as to be of little aid to diagnosis. The final diagnosis is dependent upon the cystoscopic and X-ray findings.

There is no single cystoscopic method of examination free of error in all cases. When possible, the passage of a ureteral bougie with a bulb and the feeling of a ureteral hang in the ureter during removal give the best evidence of stricture in some urologists' experience. It is impossible to pass a bulb through the ureter orifice in many cases and in others it is impossible to manipulate a bulb through the stricture area at the time of first examination. Again, one may obtain a false impression from ureteral spasm.

Hunner uses this method and is very enthusiastic in its recommendation while other men,—most of them apparently,—lay little stress on this method of examination. Braasch in a recent article considers it of little value.

The information obtained from obstruction to ureteral catheters is often misleading. One frequently is unable to pass a catheter beyond a certain point at the first examination and at a later examination it passes easily. The curve in a normal ureter may be so great that a stiff catheter impinges on the wall, or some other mechanical interference will suggest obstruction in a normal ureter. Normally, there are several areas of distinct narrowing in the ureteral lumen and these should be borne in mind in the interpretation of ureteral hang, catheter obstruction and ureterograms. The size of an adult normal ureter has been determined by Eisendrath to be approximately as follows: ureteropelvic junction, 2 mm.; lumbar spindle, 10 mm.; at iliac crossing, 4 mm.; pelvic spindle, 4-6 mm.; juxtavesical, 1-5 mm.; intramural, 3-4 mm. This would indicate that ureteral narrowing normally occurs at the juncture of the ureter with the pelvis at the crossing of the pelvic brim, just before the bladder is reached and in the bladder wall itself. The pyelo-ureterograms give the most dependable information regarding strictures in many cases but the radiographic evidence cannot be absolutely depended upon. Stricture areas may not be demonstrated on account of incomplete filling of the ureter and, on the other hand, not all filling defects occurring in the ureter are due to stricture. When the ureterogram apparently shows ureteral obstruction with dilatation of the ureter and pel-



Fig. 5. Patient aged 68, pain left kidney region, fever, chills. Infection limited to left kidney. Symptoms relieved following insertion of retention ureteral catheter and instillation of silver nitrate. Note ureteral kink and dilatation of pelvis.



Fig. 6. Pain left lumbar region, symptoms improved following abdominal support. Ureteral kink probably due to aberrant blood supply.

vis above and a normal ureter below, and there is continuous ureteral drip suggestive of a large pelvis, one may feel certain that there is definite ureteral pathology. In obtaining ureteropyelograms it is absolutely necessary for accuracy to obtain two pictures, one with the patient recumbent and the other in the semi-erect position with the ureteral catheter withdrawn. With the catheter in place one may produce an artificial kinking of the ureter at its tip or straighten out a kink producing symptoms. Again, with the patient recumbent the kidney may be normally situated, while erect it prolapses producing a distinct kink in the ureter.

It is well when in doubt concerning the presence of stricture to repeat the ureterogram. As a precaution against spasm it has been recommended that the pelvis be lavaged with 2 per cent procaine solution. All precautionary measures should be adopted since at best the interpretation of the X-ray findings by those most skilled and experienced is fraught with considerable degree of error.

Although the only evidence of ureteral obstruction consists of dilatation it does not necessarily follow that ureterectasis always indicates obstruction. Dilatation of the ureter is frequently observed at postmortem examinations without either gross or microscopic evidence of constriction to account for it. This condition is spoken of as inflammatory dilata-

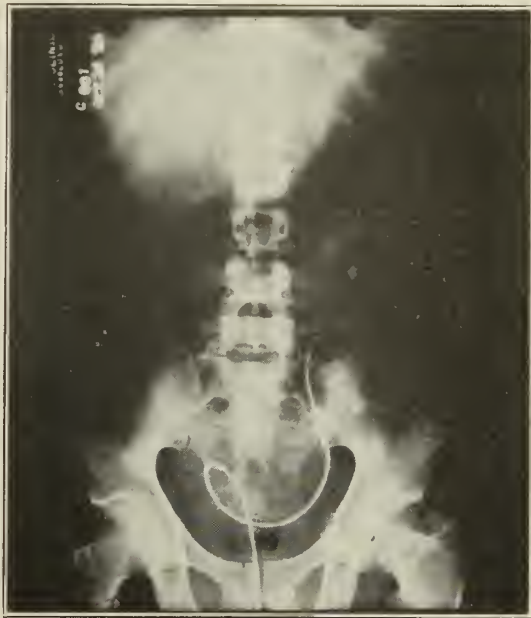


Fig. 7.

tion as distinguished from obstructive dilatation and is thought to be due to cicatricial degeneration of the musculature, and perhaps interference with nerve supply producing an atonic ureteral wall.

After all has been said and done the apparent obstruction in the lumen of the ureter may not



Fig. 8.

Figs. 7 and 8. Stone impacted near ureteropelvic junction. Due to or associated with ureteral kinking. Removal of stone followed by nephropexy.



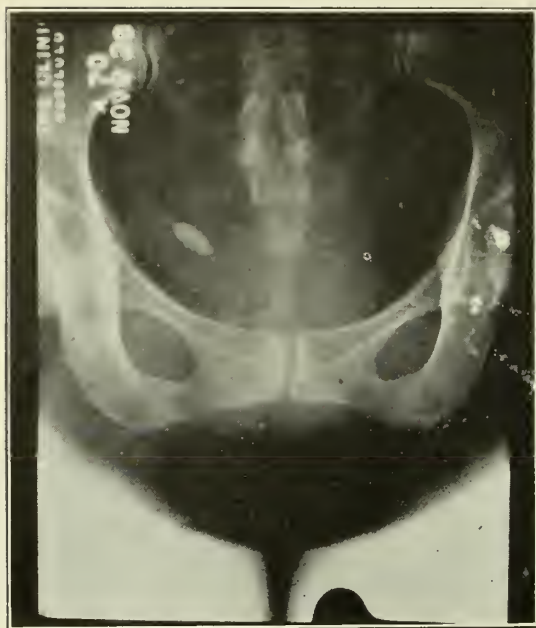


Fig. 9.

be producing the patient's symptoms and the final diagnosis may have to rest with the result of treatment. Much has been written on the technic of ureteropyelography and on the dangers of doing a bilateral pyelogram at one sitting. Some cases have been reported where



Fig. 10.

Figs. 9 and 10. Impacted stone ureterovesical juncture. Pain right kidney region and right lower quadrant past 5 years. Complete destruction of kidney. Note dilatation of ureter above. Stone and kidney removed.



Fig. 11. Five months pregnant. Right-sided pyelitis. Symptoms relieved following introduction of catheter and pelvic lavage. Note dilatation of ureters presumably due to ureteral obstruction from pressure of fetus.

uremia supervened following bilateral injection. The present tendency seems to be to inject both sides at one sitting unless the kidney function is extremely poor. One hesitates to subject patients to two sieges of this uncomfortable procedure and frequently they will not consent to a second experience. With the use of 12 per cent sodium iodide little reaction is to be expected and since it has been estimated that unless both sides are visualized an incorrect diagnosis will be arrived at in approximately 25 per cent of the cases, I have not hesitated to do a bilateral injection. So far there have been no untoward effects. When using the syringe method of injecting it is important to have a manometer in the circuit to prevent overdistension of the pelvis. A pressure higher than 30 mm. of mercury should not be used as severe pain will likely be produced and there is also danger of pyelovenous back flow. Hinman and Lee Brown<sup>1</sup> first recognized and described the condition of pyelovenous back flow and ascribe its occurrence as being due to "a structural condition at the base of the pyramids, where the rich plexuses of the venulae rectae are in close apposition to the deep sulci of the minor calices." This permits a direct flow of the solution into the venous system. "Ascending pyelovenous back flow explains

1. Hinman, Frank, and Brown, R. K. Lee: Pyelovenous Back Flow; Its Relation to Pelvic Reabsorption, to Hydro-nephrosis and to Accidents of Pyelography, J. A. M. A. 82:607 (February 23) 1924.

satisfactorily the accidents of pyelography. Injection of the deep renal tubules is impossible by way of the ureter and parenchymal extravasation requires intrapelvic pressure probably not produced clinically." A simple and efficient method of getting the desired amount of pressure without exceeding 30 mm. of mercury is to use the gravity method. The barrel of a 10 cc. glass syringe elevated 18 to 20 inches and connected to the ureteral catheter by rubber tubing is a convenient arrangement. Elevating the hips of the patient also assists in completely filling the pelvis.

The treatment of ureteral obstruction may be summed up as follows:

If the condition is due to prolapse of the kidney the application of abdominal support by belts is to be tried, at the same time attempting to increase the deposit of fat about the kidney by forced feeding. If this fails to relieve symptoms, nephropexy is to be advised provided the severity of symptoms warrant it.

Nephropexy for a time was and still is in bad repute. Since more careful examinations have been made and definite mechanical indications are the basis for its employment, the end-results have been proportionately better. Naturally, suspending a prolapsed kidney without ureteral obstruction in a highly neurotic individual with generalized visceroptosis will produce no amelioration in symptoms. When obstruction is due to anomalous blood vessels, these may be severed provided the remaining supply to the kidney is adequate. If not, suspension or nephrectomy may be employed. Pressure from extraneous sources such as fibroids, ovarian cysts, etc., are to be dwelt with accordingly. Ureteral strictures of non-malignant or nontuberculous origin respond to ureteral dilatation very satisfactorily. An attempt should be made to discover any foci of infection that may have been the contributing factor, and these removed. As was stated in the foregoing remarks, the effects of dilatation may be the acid test of a correct diagnosis. If improvement in symptoms is not obtained following the dilating of the stricture up to size No. 11 F. sound, this method of treatment should be discontinued.

In conclusion I wish to emphasize the necessity of bearing in mind the possibility of ureteral obstruction in the causation of obscure abdominal, pelvic and back symptoms, and when in doubt the advisability of using cystoscopic and X-ray aid in arriving at proper conclusions.

401 S. Beretania Street.

## COUNTRY SCHOOLS

OBSERVATIONS OF A COUNTY HEALTH OFFICER

J. F. CHANDLER, M.D.

OREGON, MO.

A health officer, in going about his work, would do well to pluck the flowers along the pathway—to gather in many of the good things presented and place them in store for use in the future. We are told: "True progress consists in bringing forward from yesterday the good of yesterday, and adding to the store of today." How are we to do this if we fail to make use of our opportunity to grasp the ideas that come to us from time to time as we visit the places where duty calls us? To be able to make use of every opportunity it is necessary to be a keen observer. Through careful observation the facts are impressed more vividly on the mind, the work becomes more interesting and the incentive to take hold is greater. As we train our sight to take in our surroundings, our mental horizon enlarges, and through continued careful observation we become aware of much that with less careful scrutiny would go unnoticed and unconserved for advancement of our knowledge along the chosen line.

We are bound to fail in advancing the cause of public health as we should unless we give careful attention to our environment and make use of the things observed which may improve sanitation, or which suggest hygienic measures necessary to better conditions in the schools we visit. If we fail to discover what is needful, how are we to know the changes that should be brought about? To be able to do so requires that we be ever alert, awake to all that is transpiring in our little domain so that we may be able to correct any faulty condition existing.

Possessing knowledge of the environment of our people and acquaintance and familiarity with the appearance of the pupils in the schools we visit, we are better enabled to direct to more helpful ways of living, when necessary, and to prevent much that may bring on disease; to give advice to those who may be suffering from poor health as a result of bad habits, unsuitable diet, etc.

That we may be enabled to accomplish all that we should in public health work, it is needful to cultivate that intimacy which helps us to see things as they exist and to take a common-sense view of the matter. Common sense, says Stowe, is the knack of seeing things as they are, and doing them as they ought to be done. To see them as they are it is necessary that we be ever watchful of all that passes before our view. This comes by cultivating the habit of observing keenly all that transpires. Knowledge gained by this means helps in



handling many a delicate situation and in getting others to cooperate in the work at hand. By diligent study and careful observation as we go about our work, we acquire knowledge of many things practical which cannot be learned from books or lectures and do not come to us merely through our appointment to office. They must come to us through association with the public in line of duty.

The health officer in the field is frequently called on to decide questions which call for work in a laboratory. Yet the layman expects an answer at once. He would be satisfied with the lawyer who says: "I will look it up," but he expects us to "know our stuff." Such being the case, it behooves us to be up on diagnosis and capable of recognizing the symptoms of the communicable diseases as they commonly appear in clinical work. In addition, we must know the condition that may follow fatigue, lack of nourishment, mental ailments and behavior of certain children who show temperamental traits—for example, those expressed by shyness, seclusiveness, sensitiveness, etc., and the opposites of these, such as boisterousness and aggressiveness. In fact, we should not fail to take into account all factors that make up personality, as well as those that bring on disease.

To be reasonably successful in the control of the contagious diseases, it is necessary that we have the cooperation of the teacher and parents of the children. We may be enabled to do this by acquainting the teacher with the early symptoms of these diseases, and making known to her the importance of sending the children home at once when she sees illness of any sort. Teachers frequently neglect to send children home for fear of the displeasure of the parents. I have known this to occur on several occasions where the parent was a director of the school. Some of our physicians have been guilty of failing to report communicable diseases through fear of arousing the displeasure of their patrons who request them not to do so, the parents telling the attendant that they will keep the children confined to the premises and prevent others from entering the home. I have received notice from neighbors of the existence of diphtheria in the neighborhood, and, when I inquired of the attending physician have been informed that such is not the case. Ask him why he gave anti-toxin and he tells me he gave it as a prophylactic. Of course, if there exists an indication of death as likely to occur, the case is reported as diphtheria. Why is this done? How can you control the communicable diseases in a rural community where fear has the upper hand of those who are responsible? Owing to the fact that little can be accomplished by compulsion (law enforcement), it be-

comes necessary to eliminate the element of fear as well as selfishness and prejudice through enlightenment and faith in your good work. We are told: "The judgment cannot function in proper manner when the mind is dominated by fear."

It would be out of place, perhaps, and make this paper too long, to enter fully into a discussion of the part fear and faith may have in the control of contagion, and how prejudice prevents the enforcement of the law in its relation to the control of the communicable diseases. No doubt many of you know how prejudice hinders in many other ways.

Sadler states it in this way: "Fear is a mental blight, a moral mildew, and an intellectual poison. It warps the temperament and stunts the character." We must not forget that building character should go along with physical training.

The toothbrush drill is all right, but I have seen an urchin with a dirty face go through the drill when cleaning should have begun on the surface. A massage of the face with some water and a mild soap was of more importance at the time than the use of a toothbrush in dirty hands through an opening surrounded by filth. Children almost too young to attend come to school with a vanity case containing a paint with which they daub themselves when the teacher turns her back.

I would mention here an incident that came to my attention a few years ago. The mother was taking her young son to task for loafing in a pool hall, and the young son remarked: "Why object, mother? The superintendent of the Sunday school was there playing pool." Why not enlighten by example? All are, or should be, interested in educating the children, realizing that the child of today becomes the citizen of tomorrow.

Education is a general and comprehensive term including in its signification everything that pertains to bringing up of children, and the operation of influences and agencies designed to stimulate and direct the development of the faculties of youth by training and instruction. Education is to be carefully distinguished from instruction, the latter being only a subordinate part of the great scheme of controlling and guiding the development of a human being. Instruction is addressed to the intellect or understanding, while education comprehends the whole nature of man and the various agencies by means of which, in his formative state, it may be effected.

When we consider that the average country home leaves the training of the children almost entirely to the school the responsibility of the teacher becomes great. The important matter of directing the child's taste in the right chan-

nel is left almost entirely to the school. According to the principles of psychology, early impressions are the most lasting; the habits and tastes that are formed in childhood stay with one through life. If there is good, mental and moral, to be derived from the standard of teaching in a school, the child subjected to such teaching will have a desire to appear well, to be healthy, to be physically and mentally fit; he will put forth the best there is in him. To be able to retain his health it is essential that he know something concerning the prevention of disease. Therefore education, or instruction, if you please, along the line of self-preservation, should begin early in life.

It seems to me that by reaching the parents and disposing of the prejudice which lingers in the minds of some of the elders, best results are to be accomplished in educating the children. Prejudice in many instances results in spreading infection. Carl Sextus words it thus: "The free thinker is he whose mind is divested of prejudices; whose soul is awakened to new forms of truth. Prejudice is ignorance educated." Sadler tells us: "We are more or less victims of blind and unreasoning prejudices—and prejudice is a sort of mental cork which prevents good ideas from entering the mind, and sometimes, also prevents splendid thoughts escaping therefrom."

I have attempted to remove prejudice where it interferes with public health work by making talks to teachers, publishing papers, seeing that the papers were placed in the hands of directors of schools, teachers and others whom I thought interested.

Some of the subjects treated are, "The Health Officer in His Relation to the Community"; "Health as a Factor in Education"; "The Country School Teacher vs. the County Nurse"; "A Report of Progress" (showing results of efforts); "Why the Expense—An Explanation?" (reason given for the expense); "A Move to Put Holt County on the Map"; "The County Unit"; "The County Unit; Is It Worth the Expense?"

In a recent article on "Vaccination" I endeavored to make known the care taken by the manufacturers in preparing vaccines; the safeguards thrown about their manufacture by the government so that no danger lurks in the vaccines when they leave the manufacturer; and how the Government protects us against infection by seeing to it that vaccines come to us clean. I also endeavored to show the precautions taken by United States agents to prevent infection through control of the contagious diseases.

While taking precautions to protect the public by immunizing with vaccines, we are not to

lose sight of the fact that building our structure (body) well from the foundation up does much to prevent destruction later on. Therefore, we should look well to the environment which should be such as will promote health, efficiency in labor, strength of character and citizenship. The school playground should be ample and the schoolhouse more than a mere shelter. The interior finish should be such as to give an abundance of light and tend toward cheerfulness and uplift. Psychology of colors should not be overlooked, much depending on this. There also should be provision for ventilation, warmth and cleanliness. Anything that may interfere with proper function of the organism lowers resistance and favors development of disease.

On inspection of schools during the present season, I failed to find a window shield in place in any school in the county, although as you know the manual plainly states that shields should be in use in rooms not provided with a ventilating system. Few are in use in the country, and those that are have an old, obsolete system—simply a makeshift—harmful to a degree because it is used to the exclusion of ventilation through windows provided with shields. Directors of schools have called at my office to learn if the law requires that shields be provided. The fact that I had shields in my windows when they called gave me an opportunity to drive home a message to those who came to learn if evasion is possible. They came as one who did not care and left as "one who cares."

Schools in the country, barring the consolidated schools, in so far as heating and ventilating are concerned, offer a problem in themselves. Crowding does not occur as the attendance is small, ranging from one pupil though commonly five or six, to about twenty-five. The majority are being taken care of in the consolidated schools where the buildings are of recent construction and modern in design, usually taking care of the conditions which may arise. However, this being so, we are not to overlook the pupil who is compelled to attend the small country school, and it becomes our duty to see to it that he receives all that is coming to him. Although a child may be in the open air a great deal as he comes to and returns from school, this is no reason why he may be neglected while confined indoors.

I have usually found the teachers willing to make any changes necessary to correct faulty existing conditions. An exception is a man of about forty-five, teaching in a little country school. I saw some of the children in his care with coats removed, running until the body became heated, and then taking a position along-



side of the building where the body was quickly cooled. I called the man's attention to the fact that he should not permit this to occur. He informed me that he did not consider it any of his troubles. I took the time to tell him that the children were under his care, and that he might make the teaching of hygiene practical, as well as doing something along the line of public health, by seeing to it that children did not expose themselves to the danger of contracting a cold.

I have been pleased with the appearance of many of the country schools I have visited. Although the teachers were not apprised of my coming, in many instances I found floors freshly scrubbed, dust removed from furniture, and in some of the schools I found a little corner furnished with a cot and a chair on which to rest. It made the room take on the appearance of a home. I question whether the effort put forth by many of the teachers in the little country schools is appreciated as it should be. The fact that teachers are so careful about attending to small things which go toward protecting the children against infection, and many which mean so much toward rightful living, is, as I have reason to believe, overlooked by directors of some of the schools. This is certainly a thing to regret.

It is unfortunate that many persons take seriously many new-fangled ideas of only passing value and overlook matters of real importance to the good of humanity. A well-balanced program is of more value than concentrating on a few things and failing to observe others necessary for a well-rounded life.

As it is impossible to keep the temperature and the humidity in the schoolroom normal without instruments a thermometer and hygrometer should be in every room. With these at hand, the teacher and children become familiar with their use and soon learn the requirements as to temperature and relative humidity. There are pretty likely to be some present who will make the fact known if the condition is other than it should be.

I have found the temperature high and the relative humidity low in the average schoolroom. In fact, in a few instances, on entering a room I have found teacher and children huddled about the stove, chilly, while to me, as I entered from the outside, the heat was so sickening that I threw open the door and waited for ventilation before I cared to enter. I found the air as dry and hot as one would find in any desert. The teacher had failed to keep the room as it should be owing to the fact that she had no means of knowing the relative humidity. The inmates were chilly and sought the heat of the stove instead of properly correcting the condition.

While the personal equation counts for much, we are to look on the pupils as a body; and it becomes necessary to strike an average in heating and ventilating a country school room. As evaporation takes place not only from water, but from all surfaces that are moist, the skin and mucous membrane lose moisture in the hot, dry atmosphere of the schoolroom and dehydration of the body takes place, depending somewhat on the movement of air in the room. If a child should be confined continuously for a few days in a room with the atmosphere as I have at times found in some of the small schools in the country, with no means of replacing the moisture driven from the room by the heat, he would, like a plant, wither and die. The fact that the children are not shut in long at a time is no excuse for such a condition existing. To mention the discomforts which may follow confinement in a hot, dry atmosphere, and to discuss fully the pathology which we may find, would lengthen this paper beyond the time allotted for it. You will not find humidity too high in the small schoolroom of the country during the time school is in session and the fire burning unless the roof leaks badly, or the building is located along the Missouri river during the "June rise."

It may be well to mention here what Wood has to say in his book on "Ventilation and Health": "Observations of the effect of temperature upon mental work were made in three classrooms in Crawfordsville, Indiana. At a temperature of 80 degrees F. the class was restless, dull and incapable of continued mental effort; at a temperature of 76 degrees F. the class was dull, sleepy, with penmanship poor; at 75 degrees F. the class was dull and complained of heat; at 74 degrees, not quite so dull; at 72 degrees, restless; at 70 degrees, excellent work, cheerfulness in class; at 68 degrees, best work, today seemed their best; at 66 degrees, splendid work, some complained about the room being cold; 60 degrees, too cold for good work, complained of the cold."

It is to be inferred that the circulation of the air was as it should be, and the relative humidity about 60 to 75, although the author, L. N. Hines, makes no mention of the fact.

On entering a schoolroom and finding the temperature high and the humidity low (room heated with a pipeless furnace with opening through the floor), I made the fact known to the teacher. He asked me: "How would you bring about the change necessary?" I mentioned ventilation through windows with shields in place, as shown in the manual, to divert the current of air upward and prevent the air from entering with force enough to create a draft. A draft chills the body by hastening the evaporation of moisture and naturally results in colds

and catarrhal troubles of the mucous membranes of the head, nose and throat; especially if the air, entering directly, falls on the children's heads and shoulders. I mentioned also that a pan containing water, so placed over the heater that evaporation could take place and the moisture be conducted into the room, would do much to improve the condition. If a pan is not available, moisten a large gunny sack and place it over the grate with something under the center to raise the sack about the grate and permit circulation. Repeat the moistening, of course, as often as the sack becomes dry.

Adding to the homelike appearance of some of the little schoolrooms in the country, were found house plants growing vigorously, some in bloom showing that they had been properly taken care of. The teacher thus added to the cheerfulness of her surroundings, little realizing, perhaps, that in doing so she was increasing the humidity and purifying the atmosphere in her little place of business. It has been proved by properly conducted experiments that house plants, through natural evaporation or transpiration, do give off moisture and ozone (evaporation from the soil surrounding the roots being shut off during the experiments). A common geranium with one square foot of leaf surface has been found to give off one and one-fourth ounces of liquid in twenty-four hours.

The elements that go toward making indoor air fresh are a temperature of from 68 to 70 degrees F., plus movability, humidity and variability. This is usually to be found surrounding the school building, in the open spaces, so place the shields properly in the windows and permit the fresh air to enter.

#### ASCHHEIM-ZONDEK HORMONE TEST FOR PREGNANCY

The Aschheim-Zondek hormone test for the diagnosis of pregnancy was carried out in 132 cases by Henry W. Loria and Maxwell Rosenzweig, Brooklyn (*Journal A. M. A.*, Dec. 22, 1928). Eighty-seven specimens came from women in all stages of pregnancy and showed a positive reaction in 98 per cent. The earliest case of pregnancy examined was in a woman whose menstrual period was seven days overdue. There were several other women in the first three weeks of gestation, all of whom showed a positive test. The importance in this type of case is obvious, in that a diagnosis of pregnancy is possible before physical examination is positive, thereby differentiating the pregnant uterus from the slightly enlarged nonpregnant uterus. The remaining forty-five specimens obtained from nonpregnant patients showed a negative reaction in 91 per cent. The test is recommended, therefore, on account of its high percentage of correct results and its simplicity. Further experience with the test will undoubtedly aid in reducing the element of error.

## WASHINGTON UNIVERSITY CLINICS

### THE DEVELOPMENT AND EFFECT OF DEEP-SEATED HEAT IN THE FEMALE PELVIS

A NEW DIATHERMY TECHNIC. PRELIMINARY  
REPORT\*

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The use of heat in the treatment of certain pathological conditions has been employed for centuries. Local applications for this purpose penetrate to a very slight depth below the surface because the tissues are poor conductors and the (capillary) circulation of blood beneath the epithelium conveys the heat away from the parts through which it circulates.

According to the degree of heat produced, we distinguish between medical diathermy (below 114° F.) and surgical diathermy or electrocoagulation above the 114° F. limit; Cumberbatch observed the latter temperature to mark the beginning of cell necrosis and continuing to actual tissue destruction, producing thermo-coagulation and slough.

The frequency of chronic inflammatory conditions in the female pelvis and the unsatisfactory results obtained following radical surgical procedures, should make this an ideal field for treatment with deep-seated heat.

The direct destruction of bacteria within living tissue by heat alone seems of doubtful value. Medical diathermy should be of value because of the production of hyperemia of the tissues, phagocytosis, and the general reaction of the body tissues to heat rather than the thermodestruction of bacteria.

In 1926, Cherry, from the gynecological service of the Harlem Hospital, enthusiastically reported the production within the tissues of higher temperature readings than other observers have been able to secure. He used the Corbus electrode and the Chapman electrode.

Although many enthusiastic investigators report producing within the affected tissues temperatures of 102° to 122°, Bettman and Crohn, from their work, reached the conclusion that it seemed impossible to focus the site of heat

\* Read before the Washington University Medical Society, May 12, 1930.



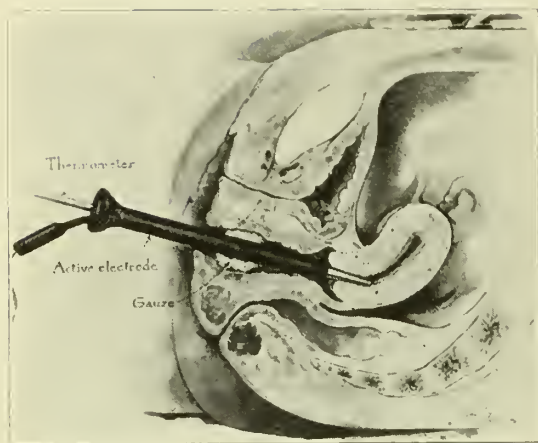


Fig. 1. Corbus electrode.

in any given internal viscus. They could not demonstrate experimentally actual localized deep tissue heating and their conclusions were that the greatest amount of heat occurred at the electrodes and that the deeper portions received a proportionately smaller amount of current, hence less heat.

Scheffey and Schmidt, from the departments of gynecology and physical therapy in Jefferson Medical College, Philadelphia, reported critically on diathermy in pelvic disease and apparently they show that diathermy gave results approximately as good as those obtained by surgery without the danger or discomfort incidental to surgical intervention. They used the abdominosacral and abdominovaginal electrode methods, as well as surgical desiccation to the cervix when the cervix was infected. Treatments were given three times a week, with a duration of fifteen to thirty minutes each. No temperature readings were given when the abdominosacral electrodes were used. In their abdominovaginal methods a vaginal electrode was inserted in the vaginal vault behind the cervix. The temperature of the vaginal electrode measured by a thermometer recorded  $100\frac{1}{2}^{\circ}$  to  $102^{\circ}$  F. They concluded: "That whatever diathermy accomplishes is due to the increase in circulation brought about by a local application of heat rather than from any heat generated in the diseased tissues themselves, and surely not from any destruction of bacteria by heat."

When pelvic diathermy investigations were started here in June, 1929, in the department of physical therapeutics, it was felt that a temperature of  $110^{\circ}$  F. throughout the pelvic organs would be of greater value than higher localized temperatures. We also felt that the only way to record temperature readings was by thermometers placed in the *treated tissue* itself and in no way incorporated in any part of

the electrode. Special thermometers that would record changing temperatures were placed in the cervical canal, in the rectum and in the urethra to give simultaneous readings. The rectal thermometer was placed well up against the rectovaginal septum at a distance above and posterior to the cervix.

In our work it seemed that the machines giving the best results were of the general specifications as follows:

A relatively low voltage, as estimated by the manufacturer to be 2000 to 2500 (not to exceed 3000), and a frequency of 800,000 to 1,250,000.

The amperage varies with the machine used and is not constant because of the influence of other factors, such as voltage, frequency, tissue resistance, spark-gap, etc.

Our experience with a high voltage machine over 2500 was not satisfactory because it gave faradic sensations, sparking locally and generally. At times with the Chapman electrode the patients complained of vaginal discomfort.

We had first tried abdominosacral electrodes of sufficient surface area posteriorly to cover the entire lumbosacral curve, while the anterior electrode covered the entire abdomen and was so shaped that it did not come in contact with the iliac crests. No local rise in temperature in either rectum or cervix was observed. When the current was increased to the maximum point of tolerance a general systemic rise of one-half to one degree Fahrenheit was noted.

We then used a vaginal electrode which was a large bivalve Graves' speculum, which was placed in the vagina in an upside-down position so that the handle of the speculum pointed anteriorly towards the symphysis. This handle was used as a binding post for the electric terminal. We call this the Roblee Electrode No. 1. Rectal temperatures with the lumbosacral plate and vaginal electrode average  $108^{\circ}$

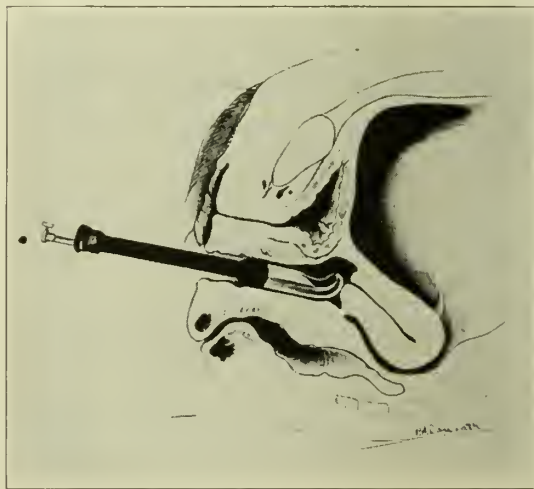


Fig. 2. Chapman electrode.

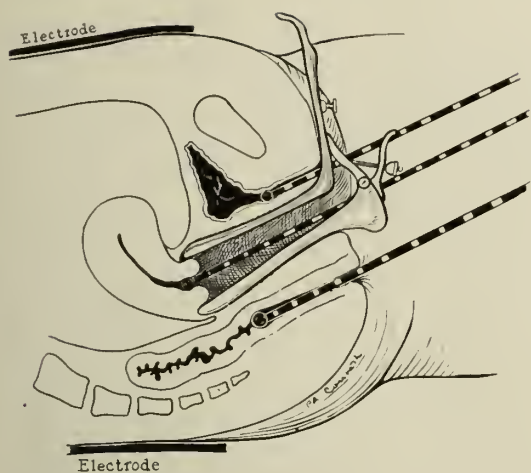


Fig. 3. Roblee electrode No. 1.

to 109° F. using a current of 1800 to 2200 milliamperes. Corresponding cervical temperatures were 102½° to 103° F. When an anterior abdominal electrode was used instead of the posterior lumbosacral type with the vaginal electrode, the rectal temperatures were from three to four degrees lower; thus we felt that the anterior abdominal electrode with the vaginal electrode seemed to concentrate the heat in the anterior portion of the pelvis, just as the heat seemed to be concentrated posteriorly when the lumbosacral electrode was used with the vaginal electrode.

It was noticed that five to six minutes were required to reach the maximum milliamperage, 1800 to 2200, using the above technic so that the patient would not complain of "hot spots." This milliamperage could be tolerated for ten to fifteen minutes. It was then noticed that the thermometer readings fell off from two to three degrees in the rectum and from one to two degrees in the cervix. The patient complained of feeling warm "all over" and usually broke out in profuse perspiration. There was a slight increase in pulse rate at this time and in some instances the oral temperature went up a half to one degree Fahrenheit. It was a purpose of this study to demonstrate just what heat could be obtained in the pelvic tissues and no attempt was made at first to treat any pathological condition. The types of cases studied were clinic cases with no gross pelvic pathology, such as tumors or subacute adnexal infections. The next step was to treat at weekly intervals, except when menstruating, a series of some ten patients who had chronic salpingo-oophoritis with a moderate amount of chronic pelvic cellulitis. Observations on these ten cases showed results similar to those obtained by Scheffey and Schmidt, that is, pelvic tenderness was decreased and the mobility of the uterus markedly increased. The ten patients

thought that the treatments improved their clinical symptoms, such as dysmenorrhea and general pelvic tenderness.

Before proceeding further with the treatment of a large number of cases, we wished to improve the technic. The next step was to make a four-blade vaginal electrode which could be placed in the vagina as a hollow cylinder made of overlapping blades and then dilated in order to bring the blades with forceful contact against the anteroposterior and lateral walls of the vagina, the posterior blade being the longest of the four and pressing well back into the culdesac. This vaginal electrode, which we call the Roblee Electrode No. 2, when used with the lumbosacral or the belt electrode, gave consistently rectal and urethral temperatures of 109° to 110° F.; however, the cervical temperatures were usually 103° to 104° F. We felt that this four-blade expanding vaginal electrode was useful in heating the adnexa, culdesac, vaginal wall, and especially the Bartholin and Skene's glands. At this stage of our work, Zener, who had previous diathermy experience elsewhere in the use of the Corbus and Chapman electrodes, assisted us. Zener felt that if a cylindrical vaginal electrode were made with four short blades that could be opened and then closed around the cervix, more heat could be concentrated in the cervical canal and immediate parametrium without material loss in rectal and urethral temperature readings. Such an electrode, which we designate as the Zener Cervicovaginal Electrode No. 1, gave us practically uniform thermometer readings in the cervical canal, urethra and rectum. These temperatures were uniformly 109° to 110° F. in the cervix and urethra, and 108° to 109° in the rectum. We then felt that we had sufficiently developed and standardized our technic to start treating a series of cases with well developed adnexal disease, including subacute salpingo-oophoritis and subacute pelvic cel-

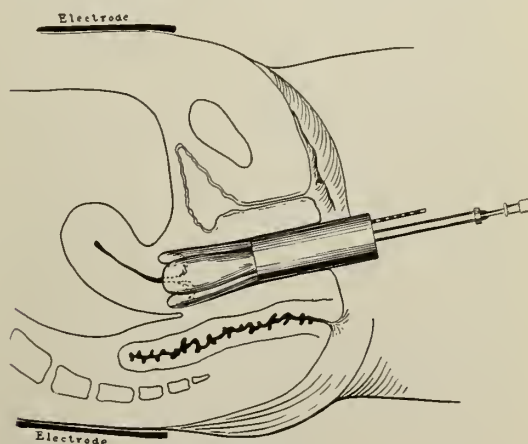


Fig. 4. Zener electrode.



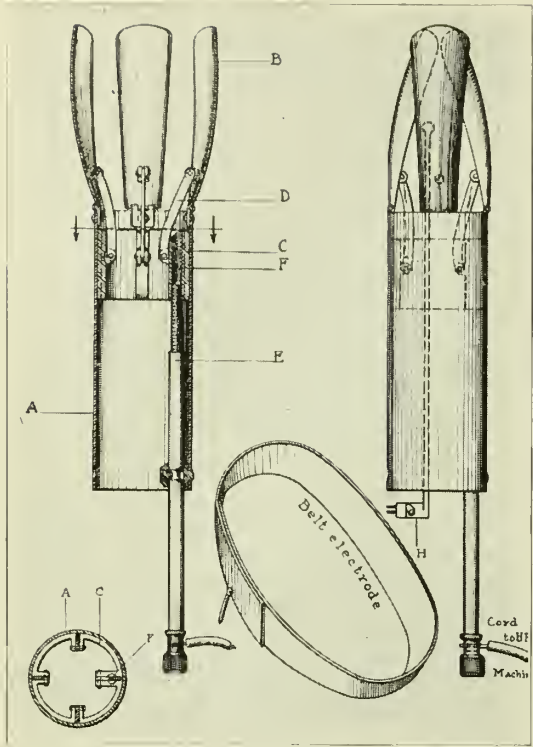


Fig. 5. Description of the Zener cervicovaginal electrode. (A) Brass tube 1 3/8 inches in diameter by 4 inches in length, to which are attached by hinges four blades (B) 2 inches in length. These blades are made to expand and contract by means of movement of connecting rods (D) attached to a collar (C) which fits inside the tube (A). The movement of the collar (C) is obtained by means of a rod (E) which is threaded into one shoulder (F) of the collar (C) and extends one inch beyond the end of the tube. The blades open to a diameter of two inches. For purposes of better visualization of the cervix the instrument is fitted with an endoscopic light. The inset at left shows the details of collar (C).

When the patient is in the lithotomy position the electrode may be inserted through a bivalve speculum. The blades of the electrode are closed during the insertion and then opened. This places the cervix between the blades of the electrode. A thermometer is inserted into the cervical canal and the blades of the electrode are closed about the cervix. The patient is allowed to lie flat while the treatment is being given. Additional thermometers are placed in the bladder and rectum.

lulitis. These cases were treated two to three times a week and were instructed not to take hot douches at home. Douching with plain water at body temperature, as required for excessive discharge, was permitted. These patients had blood smears for differential Schilling counts and white blood cell counts as a check on the degree of activity of the pelvic infection. Oral temperatures were taken as well as continuous temperature readings in the urethra, cervix and rectum. Treatments were given over a period of thirty minutes, the belt electrode being used with the cylindrical Zener cervicovaginal electrode. After eighteen to twenty-two minutes the local temperatures in the urethra, cervix and rectum would fall from 110° to about 106° to 108° F. At this time the oral temperature would become slightly elevated

from one-half to one degree. The patient would complain of being warm all over and in some instances would perspire very freely. We explained the local drop in temperature as being due to an intense local hyperemia, a greater blood supply to the pelvic organs dispersing rapidly the local heat produced.

One patient who had a supravaginal hysterectomy performed elsewhere about two years ago was used in our observations. This patient had remaining a large cervical stump the canal of which would readily admit our cervical thermometer. We found that when the dilating vaginal electrode was used the temperature in the cervical stump was about one to two degrees lower than the average. When we used the Zener cervicovaginal electrode the temperature went up one to two degrees higher than the average case and there was no tendency for this temperature to fall as in the other cases. This experiment, we felt, checked our ideas on the hyperemia in the pelvis. Since this patient had no uterus the blood supply was necessarily materially lessened and the amount of hyperemia would be correspondingly less. One other point that was noticed which might be mentioned here was that when the expanding vaginal electrode was used, whatever cervical temperatures were ob-

		W.B.C.	Myo.	Jun.	Stab.	Seg.	Bas.	Eos.	Lym.	Mono.
M. B.	(1)	9850	0	0	6	71	0	1	17	5
	(2)	7200	0	0	9	54	0	3	24	10
4-21-30	(1)	8150	0	0	6	89	0	2	20	5
	(2)	6750	0	0	7	69	0	1	18	5
4-24-30	(1)	10600	0	0	5	74	0	1	16	4
	(2)	9900	0	0	2	60	0	2	35	1
4-28-30	(1)	10500	0	0	3	65	0	1	29	2
	(2)	9150	0	0	2	67	1	1	28	1
F. H.	(1)	10950	0	1	8	55	1	7	24	4
	(2)	9250	0	0	4	53	0	4	33	4
4-24-30	(1)	8850	0	0	3	56	1	4	32	4
	(2)	6250	0	0	3	53	0	6	56	2
4-26-30	(1)	8900	0	0	3	56	0	4	32	6
	(2)	6400	0	0	4	40	0	6	47	3
H. E.	(1)	11750	0	0	9	63	1	0	38	1
	(2)	14400	0	0	9	60	0	0	28	3
4-21-30	(1)	14650	0	1	6	43	0	2	45	3
	(2)	8650	0	0	8	58	0	0	38	1
4-24-30	(1)	12800	0	0	6	66	0	0	27	3
	(2)	14650	0	0	6	67	0	0	26	2
4-28-30	(1)	11700	0	0	6	70	0	1	23	1
	(2)	11000	0	0	4	53	1	1	38	4
5-1-30	(1)	10680	0	0	6	80	0	0	41	4
	(2)	9650	0	0	6	53	1	2	36	3
L. V.	(1)	9750	0	0	2	67	0	2	23	6
	(2)	7900	Not good.							
4-21-30	(1)	8350	0	2	7	80	1	1	36	4
	(2)	9650	0	0	7	68	0	1	20	4
4-24-30	(1)	7700	0	0	6	54	0	2	36	4
	(2)	6980	0	0	4	47	0	2	44	3
4-28-30	(1)	9250	0	0	4	60	0	1	33	2
	(2)	7800	0	0	4	48	1	3	41	3
A. C.	(1)	9200	0	0	6	67	0	0	36	2
	(2)	7580	0	0	5	69	0	1	23	2
4-29-30	(1)	8800	0	0	7	39	0	1	48	6
	(2)	8100	0	0	4	47	0	1	47	8

Fig. 6. Interpretation of the differential counts. Case M. B. Slight infectious blood picture at the start that became noninfectious. Case F. H. Same. Case H. E. Same. Case L. V. Noninfectious blood picture at the start, then slightly infectious, then ended negative. Case A. C. Slightly infectious picture.

		W.B.C.	Wtlo.	Jun.	Stab.	Seg.	Bas.	Eos.	Lym.	Mono.
<b>I. M.</b>										
(1)	9000	0	0	5	54	2	0	24	4	
4-18-30 (2)	7730	0	1	5	57	0	1	35	1	
<b>4-21-30</b>										
(1)	7430	0	0	4	59	1	0	28	8	
(2)	-----	0	0	6	60	1	0	25	8	
<b>4-22-30</b>										
(1)	8900	0	0	3	64	0	0	20	4	
(2)	6100	0	0	7	59	1	0	27	6	
<b>4-25-30</b>										
(1)	9600	0	0	6	87	0	0	22	8	
(2)	8630	0	0	9	56	0	0	28	7	
<b>R. H.</b>										
(1)	11,560	0	0	4	63	1	3	28	1	
4-17-30 (2)	11,600	0	0	4	68	1	0	19	8	
<b>4-20-30</b>										
(1)	10,800	0	0	7	53	0	2	31	7	
(2)	10,800	0	0	7	53	0	2	31	7	
<b>4-22-30</b>										
(1)	8900	0	0	3	54	0	0	20	4	
(2)	8100	0	0	7	59	1	0	27	6	
<b>4-29-30</b>										
(1)	10,500	0	0	10	83	0	0	22	5	
(2)	10,500	0	0	6	47	0	0	36	10	
<b>K.</b>										
(1)	12,430	0	0	5	61	0	1	31	2	
5-1-30 (2)	11,000	0	0	2	56	0	0	36	5	
<b>Dej.</b>										
(1)	9850	0	0	13	52	0	0	21	3	
4-22-30 (2)	10,000	0	0	10	60	0	0	23	7	
<b>4-25-30</b>										
(1)	9350	0	0	10	59	1	0	29	3	
(2)	8150	0	0	10	54	1	0	29	5	
<b>4-29-30</b>										
(1)	8500	0	0	4	75	0	1	14	6	
(2)	10,450	0	0	6	68	0	1	20	5	
<b>O.</b>										
(1)	10,050	0	0	6	65	1	0	24	5	
4-22-30 (2)	9250	0	0	8	64	0	0	24	8	
<b>4-25-30</b>										
(1)	9800	0	0	5	69	1	1	20	5	
(2)	8659	0	0	5	69	1	1	20	5	
<b>E. H.</b>										
(1)	11,450	0	0	4	45	1	3	46	1	
4-18-30 (2)	9000	0	0	4	42	0	3	45	6	
<b>4-18-30</b>										
(1)	10,300	0	0	4	68	1	1	27	7	
(2)	8650	0	0	4	68	1	1	27	7	
<b>A. W.</b>										
(1)	12,950	0	1	8	56	2	1	28	2	
4-17-30 (2)	11,430	0	1	5	65	0	5	21	2	
<b>4-19-30</b>										
(1)	9200	0	0	7	61	0	1	27	4	
(2)	8500	0	0	4	65	0	0	25	5	
<b>4-29-30</b>										
(1)	8700	0	0	6	59	2	0	25	8	
(2)	8400	0	0	9	56	0	3	29	3	

Fig. 7. Interpretation of the differential counts. Case L. M. Slight infectious picture, became negative, then slightly positive, then negative, ended positive. Case R. H. Start noninfectious, became infectious, then negative, then very slightly positive. Case K. Negative blood picture. Case Dej. Two positives ending with an almost negative. Case O. Very slightly positive. Case E. H. Negative blood picture. Case A. W. Slightly positive blood picture throughout.

tained (103° to 104°) did not have the tendency to fall as the urethral and rectal temperatures did. This would indicate that the lower cervical temperatures created in this manner might be an actual temperature of hyperemia.

We feel that the temperature readings associated with the electrodes of the Corbus or Chapman types are due to the proximity of the thermometer to the internal (vaginal in our cases) electrode and do not represent the true degree of heat penetration in the tissues a few centimeters distant. With these types of electrodes we were unable to reproduce in the same patients a degree of tissue heat one to three centimeters distant from the electrode above 104° to 106° F. and of shorter duration; most temperature readings were less (102° to 103° F.), while with the Zener electrode we had no difficulty in producing regularly uniform temperatures of 110° F. in the bladder, cervix and rectum of longer duration. Only when the Chapman vaginal electrode was so placed as to be in close proximity to the thermometer in the bladder or rectum were we able to obtain higher temperatures.

EXPERIMENT IN OBTAINING THE TEMPERATURE  
IN THE UTERUS WITH A THERMOMETER  
BULB AGAINST THE FUNDUS

Uterine canal measured by sound and the thermometer placed to the same depth against the fundus. Zener cervicovaginal electrode used in routine manner. Fundic temperature 103°. The thermometer was then pulled out into the cervical canal. Canal reading 107°. Thermometer pushed into fundus fell to 103°. This, we feel, is a very accurate experiment and shows that the temperature is rapidly carried away by the blood stream from the electrode contact, and what temperature is reached may be due to hyperemia and some direct extension.

EXPERIMENT ON A LIVING DOG TO SHOW THE  
EFFECT OF THE CIRCULATION IN THE DIS-  
PERSING OF THE LOCAL HEAT GEN-  
ERATED IN THE PELVIS

A female dog was anesthetized with ether. A three-inch belt electrode was placed about the dog's thorax, the hair being shaved in this area. A solid vaginal electrode of the Morse type was used. This is olive-shaped, about one and three-fourths inches long and about one and one-fourth inches wide. This served as the active electrode. The abdominal cavity was opened and the uterus exposed. The vaginal electrode could be easily palpated through the abdomen and was pushed well up into the upper portion of the vagina in good contact with the bicornuate uterus. The site was chosen about one and one-half inches to two inches above the electrode. The uterine wall here was opened and the thermometer bulb passed into the muscular wall. A loose ligature of silk was used to steady the thermometer bulb in place. This ligature was not passed tight enough to constrict in any way the blood supply of this area.

Another thermometer was placed in the adnexal region out to the lateral portion of the pelvic wall, not in any way coming in contact with the vaginal electrode. Another thermometer was placed under

		W.B.C.	Wtlo.	Jun.	Stab.	Seg.	Bas.	Eos.	Lym.	Mono.
<b>D.</b>										
(1)	9180	0	1	7	53	0	1	31	7	
5-1-30 (2)	8200	0	0	6	50	0	4	35	6	
<b>F.</b>										
(1)	12,650	0	0	4	70	0	1	21	4	
4-29-30 (2)	11,630	0	0	6	60	0	1	39	5	
<b>Cervical Differential Counts before and after</b>										
<b>W.B.C. Wtlo. Jun. Stab. Seg. Bas. Eos. Lym. Mono.</b>										
<b>K.</b>										
(1)	9850	0	0	6	65	0	0	37	2	
(2)	11,900	0	0	8	58	0	0	32	2	
<b>5-1-30 Finger Differential Counts before and after</b>										
(1)	12,450	0	0	5	61	0	1	31	2	
(2)	11,000	0	0	2	56	0	0	36	6	
<b>Cervical Differential Counts before and after</b>										
<b>D.</b>										
(1)	8700	0	0	5	47	0	1	43	4	
(2)	21,000	0	0	7	45	0	2	42	3	
<b>5-1-30 Finger Differential Counts before and after</b>										
(1)	9150	0	1	7	53	0	1	31	7	
(2)	8200	0	0	5	30	0	4	35	8	
<b>Cervical Differential Counts before and after</b>										
<b>EH.</b>										
(1)	10,450	0	0	4	45	0	2	47	2	
(2)	13,600	0	0	4	50	1	2	41	2	
<b>5-1-30 Finger Differential Counts before and after</b>										
(1)	10,850	0	0	5	59	0	0	41	4	
(2)	9630	0	0	8	53	1	2	35	3	
<b>Cervical Differential Counts before and after</b>										
<b>AC.</b>										
(1)	7430	0	0	5	44	0	0	48	3	
(2)	9400	0	0	8	61	0	0	28	5	
<b>4-29-30 Finger Differential Counts before and after</b>										
(1)	8800	0	0	7	39	0	1	48	5	
(2)	8100	0	0	4	47	0	1	47	8	

Fig. 8. Interpretation of the differential counts. Case D. Slightly positive. Case F. Negative.



the rectus muscle in contact with the pelvic peritoncum at a point proximately above the thermometer that was in the pelvic adnexal region. Another thermometer was placed in the vagina next to the vaginal electrode.

The current was then turned on, spark gaps opened wide, milliamperage reading about 2000, temperature rose rapidly within three to four minutes. The assistant held the uterine thermometer so that the bulb of this thermometer was at least one and one-half inches to two inches above the cervical electrode. The following table will show the simultaneous readings obtained.

Table 1

Time	Vaginal Temperature	Uterine Temperature	Adnexal Temperature	Peritoneum Abdominal Wall Temperature
3:45 to				
3:50	111	111	111	108
3:52	111½	112	112	109
3:53	112	112	112½	110
4:00	113	114½	114	112
4:01	113	115	115	112½
4:03	113	114	114½	112

(Vaginal temperature the same, slight fall on the three other thermometers after two minutes time. We believe this to be due to hyperemia although this temperature is the lethal point of cell tolerance.)

dog died				
4:04	113	116	116	114
4:06	115	118	116	117
4:10	117	122	117	117
4:15	117	124	119	118½
4:17	117	126	118	120
4:18	118½	130	119	120
4:20	119	135	122	120
4:22	122	140	122½	120

Note. Milliamperage and all machine adjustments were constant throughout the entire experiment. At 4:22 an incision was made in the thoracic wall under the passive electrode belt and the temperature reading of 119° was obtained. At the same time an oral temperature was taken of 108°.

A POSSIBLE INTERPRETATION OF THE EXPERIMENT

1. It seemed that our electrode surface area was larger in proportion to the dog's size than our present technic of electrode surface area as compared with a human adult.
2. The entire pelvis seemed to be heating uniformly without difficulty.
3. The adnexal regions and the uterine wall temperatures remained approximately the same until the dog died, while the abdominal wall area was from two and one-half to three degrees lower.
4. This would seem to indicate a tendency to heat the deeper structures more completely. In other words, the heat seems to radiate through the tissues rather than follow the muscle-fascia-skin route.
5. We believe the fallen temperatures were due to a hyperemia which was not able to carry away the local heat sufficiently to prevent blood coagulation thrombosis and tissue destruction. This, we think, caused the death of the dog.
6. It was noted that the temperature rose immediately as soon as the dog died. That is,

as soon as the circulating blood stopped in this removal of local heat.

7. Note that the uterine temperature was higher than the vaginal or adnexal or abdominal wall at the end of the experiment. Also note that the vaginal, adnexal and abdominal wall temperatures were the same at the end of the experiment and that the temperature under the passive electrode belt was approximately the same.

8. This might indicate that there is a tendency to heat all tissues between active and passive electrodes uniformly except those tissues that are so deep that there is no chance for the heat to escape by convection and radiation such as would be the case in the uterus.

POSSIBLE SUGGESTIONS IN IMPROVEMENT OF OUR PRESENT TECHNIC AS SUGGESTED FROM THIS DOG EXPERIMENT

1. Increase our electrode surface area. This would seem to make for more uniform heating without the local high temperatures which are not desirable.
2. Decrease the space between our active and passive electrodes. This to be done perhaps by a passive electrode which could be so arranged as to press in the abdominal wall in the sub-umbilical region. This would limit our area heated and we think we could hold a more uniform temperature by doing this.

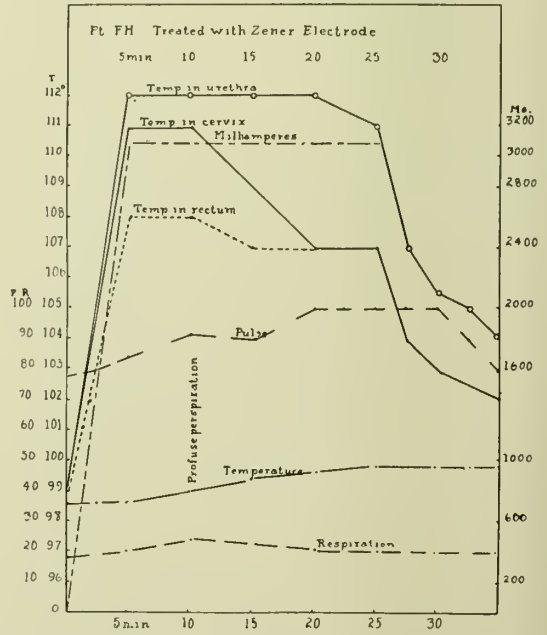


Fig. 9. Graphic representation of simultaneous temperature readings in the urethra, cervix, rectum and mouth. Also, pulse rate and respiration. Milliamperes also recorded, as well as the time intervals during a treatment of thirty minutes. Note temperature of cervix falls markedly between ten and twenty minutes of treatment, while oral temperature rises synchronously. This shows we believe that the heat generated locally in the pelvis is dispersed generally throughout the body by the marked hyperemia and the increased blood flow through the pelvis.

#### EXPERIMENT NOTED AT OPERATION

On a patient who had eight weeks of diathermy treatment, using a Graves' bivalve speculum as a vaginal electrode and a large lumbosacral plate as a passive electrode.

Young woman, 22 years old, history of gonorrhea three years before. Pelvic findings: bilateral tubovarian masses the size of lemons; uterus second degree retrodisplaced, fixed; pelvis was very tender and indurated. History of chronic appendicitis and bilateral Bartholin abscesses. Operation for appendix. Ovaries normal size, tubes injected, open, pulled down into the culdesac by thin cobweb adhesions. These thin adhesions quickly broke up on touch and separated much more easily than the usual dense, nonseparating type of chronic pelvic inflammatory adhesions. Patient now in excellent condition, no menstrual disturbance and no pelvic pain.

#### EXPERIMENT USING DIFFERENT ELECTRODES IN BEEF

The relative size of the meat area in these experiments carried out on tissue which contained no active blood supply limits the actual comparison of the larger electrode with the small Corbus type electrode. Much more heat was produced in a shorter period of time with the larger electrodes throughout the beef. In order to heat the beef to the periphery with the Corbus electrode, it was necessary to char the meat immediately around the electrode.

Electrode temperatures of 160° to 180° were obtained, while temperatures in the beef one or two centimeters distant were from 15° to 20° lower. With larger electrodes more uniform temperatures throughout the beef were reached without the local charring effect, although high electrode temperatures were more easily reached. The meat cooked thoroughly as shown by cross-section and there was a decided tendency to spread in a V-shaped area of decreasing temperatures as the periphery was approached. The V-shaped areas of cooking were much more marked wherever the passive electrode came in closer apposition to the meat.

#### CONCLUSIONS

1. Definite evidence that no case was made worse during treatment; that is, no chronic process became acute, as shown by Schilling hemogram.

2. All variations were so slight that no other conclusions could be drawn from this limited series.

3. Slight cold in patients could be responsible for such changes noted.

4. The fluctuation in lymphocytes occurred in many cases and cannot be used to indicate anything in particular, not even the degree of hyperemia.

5. The increase in polymorphonuclears is also subject to marked variation and must not have any specific interpretation.

6. The constant increase in the cervical white count is indicative of course of hyperemia.

7. The Zener cervicovaginal electrode and technic as described will result in temperatures in the cervical canal averaging 111° F., urethra

108°, rectum 108°, with extreme high temperatures of 115°, 112°, and 110° respectively.

8. It is impossible to maintain this degree of heat for a period of over five to eight minutes, due to the dissipation of heat by the blood stream.

9. There was found universally a rise in temperature by mouth, increase in pulse and respiration.

10. Symptomatically, all patients were improved. If temperatures above 113° (cervical temperature) are used, the patient invariably complains of feeling worse, increase in pelvic pain following treatment and increase in tenderness, etc.

The work with this new Zener electrode is too recent as yet for us to report any clinical results. Of our fifteen cooperating patients who have received four or more treatments, increased mobility of the uterus has been definitely determined in all. At present we are treating a constantly increasing number of patients with chronic inflammatory processes and at a later date we shall report the results we obtained from the application of deep-seated heat to the female pelvic tissues by means of this new technic.

N. B. We wish to thank Miss Cotton and Mr. Byland for their part in the blood work, differentials, total white counts and routine work. We are indebted to Dr. Bredeck for assistance in the interpretation of the Schilling differentials.

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#### EYE LESIONS IN PATIENTS WITH POSITIVE WASSERMANN REACTIONS

A study was made by Frank H. Rodin and James G. Carson, San Francisco (*Journal A. M. A.*, Aug. 3, 1929), of eye conditions in patients with positive blood Wassermann reactions. One thousand consecutive case histories were examined. Two hundred and eighty-six patients, or 28.6 per cent, were examined at the eye clinic. One hundred patients had demonstrable eye lesions. Fifty-one of them were first seen at the eye clinic and forty-nine were referred from other clinics. There were seventy-six male patients and twenty-four female. The greatest age incidence occurred between 40 and 50. Practically every pathologic eye condition was present. The lesions most frequently found were optic atrophy, Argyll Robertson pupils, interstitial keratitis, iridocyclitis and ophthalmoplegia interna. In the series of patients with positive cerebrospinal fluid Wassermann reactions there was predominance of degenerative lesions such as optic atrophy, Argyll Robertson pupils, ophthalmoplegia interna and paralysis of the eye muscles. A routine eye examination is advisable of all patients with a positive blood Wassermann reaction. A Wassermann reaction is indicated whenever the etiology of an eye condition is unknown or doubtful.



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JULY, 1930

## EDITORIALS

JOHN FRANK HARRISON, M.D.

PRESIDENT-ELECT, MISSOURI STATE MEDICAL  
ASSOCIATION 1930-1931

The House of Delegates at the Hannibal Session, in selecting the President-Elect for 1930-1931, went to the north central Missouri tier of counties and in Mexico, county seat of Audrain County, found the man,—Dr. John Frank Harrison.

Dr. Harrison comes from Virginian pioneer stock with a distinguished ancestry. His father, James M. Harrison, was born in Callaway County in 1827, nine years after his grandfather. Major John Harrison, came to Missouri from Virginia in 1818. A great-uncle, James Harrison, was the first presiding judge of the Audrain County Court. Dr. Harrison's mother, Elizabeth Jane Sayers Harrison, was the daughter of Captain Samuel Sayers, of Wytheville, Virginia, who came to Missouri in 1835 and settled in Callaway County in that year.

Dr. Harrison, the seventh of eight children, was born near Benton City, Audrain County, Missouri, on November 12, 1871. Two brothers and three sisters of this family, in addition to himself, are now living. He received his education in the Audrain County rural schools, and at Westminster College, Fulton. Dr. Harrison began his medical studies in the University of Missouri School of Medicine in 1895. In the following year he continued his studies in the Missouri Medical College at St. Louis where he was graduated with the class of 1898. Missouri Medical College was later merged with Washington University and, therefore, Dr. Harrison is now an alumnus of Washington University.

After his graduation he returned to Benton City where he practiced for three years. In March, 1902, he was appointed assistant superintendent of State Hospital No. 1, Fulton, and served in that capacity during the administra-

tion of Governor Alexander M. Dockery and during the superintendency of the late Dr. J. W. Smith, of Pleasant Hill.

Achieving merited recognition in the care and treatment of mental diseases and as an administrator, Governor Folk appointed him superintendent of State Hospital No. 4, Farmington, in 1907. Here his reputation as an institutional administrator and superintendent was enhanced, and although the eleemosynary institutions were in those times frequently involved with the changes of political administration in the state government, he was reappointed by Governor Herbert Hadley, the first Republican governor in Missouri since the Civil War.

Leaving the Farmington Hospital in July, 1910, to return to Mexico and begin private practice, he succeeded the late Dr. E. S. Cave after caring for his practice in what proved to be that well known physician's final illness. Dr. Harrison has retained his interest in the state's eleemosynary institutions and has been urged to reenter this field but always declined to leave his Mexico practice.

He has continued in active practice in Mexico since 1910, except for an interval during the World War, and is associated with Dr. Fred Griffin and Dr. James F. Jolley. During the war he served as captain in the medical corps of the U. S. Army, at Fort Riley, Kansas, and at Camp Pike.

Dr. Harrison enjoys a large and lucrative practice and is popular with members of his local profession. He is esteemed by the people of his community for his efforts in making his home city a better place in which to live. The City of Mexico, drafting him as the chief executive, elected him its mayor in 1916, again in 1918, and a third time in 1920. When Dr. Harrison went to war he submitted his resignation as mayor but on his return he found his colleagues on the city council had declined to take any action on his resignation, and he was at once returned to his duties as mayor. Since 1920 he has been city health officer of Mexico.

To keep abreast with scientific advancements in medical science, Dr. Harrison has frequently attended clinics in medical centers. He is keenly interested in all things pertaining to the medical profession and has been a member of the medical societies of the counties in which he has resided and of the state and national associations throughout his professional life. He is a past president of the Audrain County Medical Society and the Callaway County Medical Society, having served as president of the latter during his superintendency of the Fulton Hospital.

He served for several years as Councilor of the Twenty-Fifth District, composed of the



JOHN FRANK HARRISON, M.D.

MEXICO

PRESIDENT-ELECT 1930-1931

counties of Reynolds, Iron, St. Francois and Washington. Later he served as Councilor of the Ninth district, composed of the counties of Audrain, Boone, Howard, Callaway, Montgomery and Warren. He was a member of the Public Policy Committee in 1919.

Dr. Harrison is a member of Hebron Lodge of the Masonic order in Mexico, and in addition to his professional activities is interested and active in civic and community betterment projects. He is a member of the Presbyterian Church, is unmarried, and makes his home with his two sisters, Miss Margaret (Ped) Harrison and Mrs. Helen Tinsley.

Under the leadership of Dr. Harrison, the membership may feel assured of a wise and intelligent administration of the affairs of the organization and unselfish devotion to the duties imposed upon one who is elevated to this high office. In the execution of these duties we know he will have the whole-hearted and generous cooperation of every member of the Association.

#### PHYSICAL THERAPY MEETING IN ST. LOUIS

Physical therapeutics is slowly but surely emerging from a chaotic and empirical state into one which has a sound and rational basis and acceptable to a large group of thinking medical men. It is true that during the last ten years much has been written which had better been left unsaid; much has been claimed, a great deal of which time and clinical experience have proved to be unsound. Upon analysis one may conclude that history is repeating itself. It is but necessary to reflect for a moment on the chaotic state of affairs which existed in drug therapy before the American Medical Association finally established the Council on Pharmacy and Chemistry. And even with this precise and rigid body exercising a firm hold on the drug market, medical men are painfully aware of the immense amount of quackery still existing in drug therapy. It is therefore not at all surprising that the comparatively new field of physical therapy needs to go through a



similar process of evolution, and from time to time purge itself of those things which cannot be substantiated and are misleading and harmful. The American Medical Association has officially recognized the value of physical therapy by establishing a Council on Physical Therapy and thereby assisting very materially in placing before the medical public its findings regarding apparatus of various types which it is asked to investigate.

Thoughtful physicians and surgeons frequently put the question to those qualified in this work, what is a good book or journal to read which covers the field of physical therapeutics in a concise and truthful manner, and understandable to the general practitioner. If one scans present day literature bearing on the subject of ultra violet and diathermy alone, one soon comes to the painful conclusion that it is a most difficult task to pick the wheat from the chaff; and yet, after this has been accomplished, there remains a residue which may well be accepted by the thoughtful physician.

It is in order to help the general practitioner to decide these questions, to learn of the indications and technic of worth while physical therapy, that the American Congress of Physical Therapy continues its existence. This organization came into being nine years ago and enjoys today a membership of close to a thousand regular physicians whose passport into the society is represented by membership in their local city, county or state society. It has met in eight annual sessions in Chicago, but the next meeting is scheduled at the Hotel Jefferson, St. Louis, on September 8-12, 1930. The meeting will encompass not only scientific papers but will also foster a postgraduate course in physical therapy designed for the general practitioner. Every phase of the work will be covered, from the elemental to the more advanced. The clinical side especially will be stressed and demonstrations of technic will be emphasized to aid him who is interested in this work.

Dr. Norman E. Titus, New York, is president; Dr. F. H. Ewerhardt, St. Louis, is first vice president; and Dr. F. L. Wahrer, Marshalltown, Iowa, secretary. Dr. F. H. Ewerhardt is the St. Louis member of the committee on arrangements. The other members of the committee are Dr. A. R. Hollender, chairman, and Miss Lucille White, secretary, of Chicago.

#### ANTIVACCINATIONISTS AGAIN

About once every year the question of compulsory vaccination in the St. Louis Public Schools is agitated by a certain coterie who want this health saving provision abolished or changed in order to permit the admission of unvaccinated children to the schools. All intel-

ligent and unbiased people, the courts, the press and the St. Louis Medical Society have supported the St. Louis Board of Education in maintaining the rule requiring children to be vaccinated against smallpox before admission to the public schools, and vigorous protests against amending the rule were voiced by the St. Louis Medical Society and the newspapers. The rule reads:

"No child that has not been vaccinated shall be admitted to the public schools but a child that has not been successfully vaccinated may be provisionally admitted on order of the superintendent."

This year the opponents of vaccination proposed what on the surface seemed to be a harmless amendment to the rule by asking the Board to omit the words "successfully" and "provisionally." Naturally, the omission of these words would have destroyed the efficacy of the rule.

St. Louis has been remarkably free from epidemics of smallpox for a good many years but the laxity in vaccination of persons outside of the public schools shows what it costs the city to care for cases of smallpox that do develop. During the controversy about changing the rule Dr. Max Starkloff, St. Louis Health Commissioner, produced statistics which showed that since 1900 there have been 6505 cases of smallpox in St. Louis requiring the expenditure of \$975,750 in their care and treatment. In this time, Dr. Starkloff said, there has been no case of smallpox in the public schools, but there were 480 cases in private schools where vaccination is not a compulsory preliminary to admission.

The Board of Education declined to amend the rule.

#### NEWS NOTES

Dr. W. T. Coughlin, St. Louis, was the guest of the Oklahoma State Medical Association at its annual meeting held at Shawnee, Oklahoma, May 28, and delivered an illustrated address on "The Refinements in the Treatment of Trigeminal Neuralgia Major."

The United States Civil Service Commission states that physicians are needed at the following establishments of the United States Indian Service: Cheyenne River Agency, South Dakota; Jicarilla Agency, New Mexico; Theodore Roosevelt Indian School, Arizona; Consolidated Ute Agency, Colorado; Standing Rock School, North Dakota. Those interested should apply to the United States Civil Service Commission, Washington, D. C., and ask for examination announcement No. 51 and application blanks Nos. 2600 and 2398.

Dr. H. L. Alexander, member of the hospital staff of Barnes Hospital, St. Louis, gave a luncheon address before the City Club, St. Louis, recently on "Health Versus Wealth." Dr. Arthur M. Alden, St. Louis, presided.

More than \$40,000 has been subscribed toward the \$50,000 that the Rolla Chamber of Commerce has been soliciting to build a hospital in Rolla. The full amount is expected to be raised. Wilks Hyer, head of the Penny stores in St. Louis and former resident of Lake Springs, Mo., twelve miles from Rolla, has offered to give \$50,000 provided the citizens of Rolla and surrounding country raise an equal amount. The institution will be called the May Hyer Memorial Hospital.

The United States Civil Service Commission has announced that the Veterans' Bureau Hospital at Fort Lyon, Colorado, is in need of a medical officer to serve as specialist in pathology. Those who are interested should write to the United States Civil Service Commission, Washington, D. C., or to the secretary of the Thirteenth United States Civil Service District, Denver, and ask for examination announcement No. 51 and application blanks Nos. 2600 and 2398.

The \$300,000 gift made three years ago by the late Edward Mallinckrodt, St. Louis, to Washington University for an institute of radiology, has been supplemented by a gift of approximately \$150,000 from Edward Mallinckrodt, Jr. The building of the institution, to be known as the Edward Mallinckrodt Institute of Radiology, is scheduled to be finished September 1. The total cost will be \$500,000. An endowment of \$750,000, which has been contributed by the General Education Board of the Rockefeller organization, will be available to defray the expenses of operation of the institution and to further research work in radiology. The building is located between the St. Louis Children's Hospital and the Johnson-Rand Memorial wing of Barnes Hospital with which it is connected on every floor except the upper two. It will house no patients, but will serve all the patients in the university group of hospitals including the Children's, St. Louis Maternity, Barnes, the new McMillan Eye, Ear, Nose and Throat Hospital, and the university dental and medical clinics. The plan has been to make the institute the most complete unit in the world for radiology work, combining the most efficient service to patients and facilities for research investigation.

Tentative plans for the construction of a \$35,000 hospital at the Missouri Reformatory, Boonville, have been announced by Col. Theodore Ziske, superintendent. Gov. Caulfield has visited the proposed site and has indicated he is ready to release the appropriation for the institution.

The New York Academy of Medicine, New York, has issued a pamphlet "Synopsis of Approved Opportunities Offered in Greater New York for Graduate Study in the Clinical Specialties." The Committee on Medical Education of the Academy makes such a survey each year with a view to improving the value of existing opportunities and encouraging the development of additional ones. Approval is given to courses only after investigation has shown them to be well organized, with adequate equipment and clinical material, and to be given by physicians of character who are known to be qualified teachers in their special lines of work. Recommendations are made in dermatology and syphilology, internal medicine, neurology and psychiatry, obstetrics and gynecology, ophthalmology, otolaryngology, pediatrics, roentgenology, surgery, orthopedic, traumatic, rehabilitation surgery, physical therapy, and urology.

Dr. Charles Hugh Neilson and Dr. Daniel Martin Schoemaker, both of the faculty of St. Louis University School of Medicine, were honored at a dinner given by the Administrative Board of the University, June 4. This was the anniversary of twenty-five years of uninterrupted service of both men in the medical school. Dr. Neilson is the associate dean of the school of medicine and professor of internal medicine. He has acted as assistant city pathologist, as a member of the staff of St. Mary's Infirmary, chief of Alexian Brothers' Hospital, on the staff of St. Louis City Hospital, and physician-in-chief at St. John's Hospital. He was graduated from Ohio Wesleyan University in 1894, received his Ph.D. at the University of Chicago in 1903 and his M.D. at Rush Medical College, 1905. Dr. Schoemaker is professor of anatomy. He received his B.S. from the University of Chicago in 1898 and M.D. from Rush Medical College in 1904. He did research work in the Rockefeller Institute for two years. He served his internship in the St. Louis City Hospital and acted as assistant city bacteriologist for one year. The committee in charge of the anniversary dinner was composed of Father Alphonse M. Schwitalla, dean of the medical school; Dr. John Auer, Dr. Moyer S. Fleisher, Dr. Ralph A. Kinsella and Dr. Alver H. Kerper.



Dr. D. D. Cox who has been practicing at Pomona for fourteen years has moved to Rola where he will continue practicing, giving special attention to general surgery. He has taken offices in the Telephone Building.

A free sanitarium "where any Kilborn, no matter where he lives, may regain his health" is arranged for in the will of George D. Kilborn, former publisher of the Nevada State *Journal* of Reno and mining man who died a few months ago at Auburn, California. The sanitarium is to be founded at the old Kilborn homestead in Jefferson County, New York. The will further states that if enough Kilborns to fill the sanitarium are not found the needy residents of Jefferson County may obtain treatment and if there are further vacancies the people of Lewis County, New York, may be admitted.

Five medical societies in New York conducted a campaign from October 15 to December 31, 1929, in the interest of periodic health examinations. The campaign was planned by the Greater New York Committee on Health Examination, a body composed of representatives from each of the five county medical societies of greater New York, the County of Queens, County of Kings, Richmond County, Bronx County, and County of New York. The campaign was for the purpose of educating the public to the advantages of regular health examination. A report and survey of the campaign is given in a volume, "For Health."

A National Institute of Health under the direction of the United States Public Health Service was authorized May 26 by President Hoover. The new research center will absorb the old hygienic laboratory of the Public Health Service. The bill carried with it an appropriation of \$750,000 which will be used for sites and buildings. An extra story on the present hygienic laboratory has been planned. Establishment of fellowships is provided for so that individual scientists may work at the new institute and contribute the benefits of their research work to the United States. After the original appropriation has been used, further development will depend largely on donations and contributions by private individuals, which the Secretary of the Treasury is authorized to accept on behalf of the Government. The surgeon general of the Public Health Service will be in charge of the new institute and Dr. George W. McCoy, present director of the hygienic laboratory, will probably continue as its director.

Press announcements from Washington, D. C., state that the Federal Radio Commission on June 13 refused to renew the license of Station KFKB, Milford, Kansas, operated by Dr. John R. Brinkley, so-called goat gland specialist.

Dr. Willard Bartlett, St. Louis, spoke at the June clinic meeting of the Kansas City Southwest Clinical Society, June 10, his subject being "A Study of Deaths in a Surgical Service; Their Interest to the General Practitioner." Dr. Bartlett was also a guest of the Twin Lakes District Medical Society, Rockwell City, Iowa, on June 12, where he conducted a diagnostic clinic. The society is composed of eleven counties affiliated for postgraduate clinical instruction.

The United States Civil Service Commission announces open competitive examination for a senior medical technician (pathology). Applications must be on file with the Civil Service Commission at Washington, D. C., not later than July 9, 1930. The examination is to fill vacancies in the office of the Surgeon General, War Department, for duty in Washington, D. C., and in positions requiring similar qualifications. The entrance salary is \$2,000 a year. Higher salaried positions are filled through promotion. Competitors will not be required to report for examination at any place but will be rated on their education, training and experience. Full information may be obtained from the United States Civil Service Commission, Washington, D. C., or from the Civil Service board at the postoffice or customhouse in any city.

The fourth edition of Merck's Index has recently been issued. It is an encyclopedia of chemicals and drugs used in chemistry, medicine and the arts. Supplementary tables and tests have been added and some of the text included in former editions has been omitted to give space to more important material. The contents of the book are in no sense limited to Merck's products and because of Merck and Company's general interest in the dissemination of information on chemicals, the company has absorbed a large part of the expense of producing this edition. It is offered at the nominal price of \$2.50 to members of the chemical, pharmaceutical, medical and allied professions. To other persons the subscription price is \$5.00. In order to obtain the book at the \$2.50 rate, mention should be made of the connection the writer has with the profession and communications should be addressed to Merck & Co., Inc., (Index Dept.), Rahway, N. J.

Red Cloud Fleetwood, Cherokee Indian, was taken into custody, May 26, and held in the Greene County jail at Springfield, charged by federal authorities with being the head of a large narcotic ring operating in Eastern Oklahoma, with headquarters at Moffett, Oklahoma. Other arrests are expected.

Dr. Max Goldstein, St. Louis, was elected president of the American Laryngological, Rhinological and Otological Society at the annual meeting in Atlantic City, May 30. Dr. Goldstein is president and director of the Central Institute for the Deaf, St. Louis, and was one of the early advocates of the oral method of teaching deaf children to speak.

A general practitioner is needed in Howell, St. Charles County, Missouri. This is a rural community connecting by an all-weather gravel road with St. Charles, eighteen miles away. There is a high school. For additional information, address Mrs. Maurice Mushaney, Howell, via Hamburg.

The summer clinics sponsored by the Chicago Medical Society will be held at Cook County Hospital, Chicago, August 11 to 22. The Chicago Medical Society *Bulletin* is now publishing weekly the pathological conferences conducted by Dr. R. H. Jaffee at Cook County Hospital. Members interested in these announcements can obtain full information from the office of the Chicago Medical Society, 185 North Wabash Avenue, Chicago.

"The Medicos," a historical memento of the annual banquet of the Medical Section of the Reserve Officers' Association of Kansas City, published recently, contains much interesting information. Articles include a history of the Kansas City chapter, activities of the organization, outlines of work carried on by the group, and a listing of members of the Medical Section. The Reserve organization in Kansas City stands as preeminent and is pointed out by military men of the Regular Establishment as a model. "The Medicos," edited through the assistance of Major E. H. Trowbridge, Kansas City, upholds the standard of the organization. The Kansas City Units of the Medical Section are the 371st Medical Regiment, Col. Calvin A. Cooper, commanding; 122nd General Hospital, Col. Kerwin Kinard, commanding; 28th General Hospital, Lt.-Col. Frank Teachenor, commanding; 64th Evacuation Hospital, Lt.-Col. C. E. Frazier, commanding; 121st Station Hospital, Lt.-Col. E. L. Stewart, commanding.

Dr. Malvern B. Clopton, St. Louis, has given \$250,000 of the amount to be expended on the Rand-Johnson Memorial wing of Barnes Hospital. The gift was made more than a year ago but was not announced until June 3.

The 300th anniversary of the discovery of quinine will be celebrated by Shaw's Garden, St. Louis, October 31 and November 1. Dr. George T. Moore, director of the Garden, is planning an international celebration and has invited leading scientists from all over the world to come to St. Louis for the occasion. A. R. Van Linge, of the Nederlandsche Kininefabrick at Amsterdam, one of the best known European chemists, and Dr. M. Kerbosch, director of the government Cinchona plantation in Java, one of the world's greatest experts on the natural sources of quinine, have accepted Dr. Moore's invitations and will speak at a dinner at Hotel Jefferson on October 31. Historical records at Shaw's Garden show that in 1630 Juan Lopez Canizares, Spanish corregidor of Loxa, was the first to demonstrate that the bark of the Cinchona tree cured malaria. Natives were said to have used it for this purpose for an unknown period previously.

The following articles have been accepted for New and Nonofficial Remedies:

Eli Lilly & Co.

Ampoules Glucose (Dextrose, U. S. P. O.  
Lilly 50 Gm., 100 cc.

Parke, Davis & Co.

Parke, Davis & Company's Cod Liver Oil  
with Viosterol 5 D

Sandoz Chemical Works, Inc.

Scillaren

Tablets Scillaren

Solution Scillaren

Scillaren-B

Ampoules Scillaren-B

## OBITUARY

HENRY W. WESTOVER, M.D.

Dr. Henry W. Westover, St. Joseph, a graduate of New York Homeopathic Medical College and Flower Hospital, New York, 1872, died March 30, aged 79.

Dr. Westover had practiced in St. Joseph for fifty-six years and was well known and esteemed by members of the profession. He had been on the staff of the Missouri Methodist Hospital and was a member of the board of directors of the St. Joseph Tuberculosis Society. He received his preliminary education at Clark Seminary, Aurora, Ill. After finish-



ing his medical education, he spent two years in New York Hospital, New York, then began practice in St. Joseph.

Dr. Westover was a member of the Buchanan County Medical Society and was elected an Honor Member in 1929.

### THOMAS B. HERBERT, M.D.

Dr. Thos. B. Herbert, Lebanon, a graduate of the Missouri Medical College, 1890 (now Washington University Medical School), died of cardiac thrombosis, May 4, aged 62.

Dr. Herbert obtained his education in the public schools including the state normal school. He practiced at Dunlap and Galt in Grundy County before he moved to Lebanon. He served as vice president of Grundy County Medical Society and also of Laclede County Medical Society and was a delegate to the State Association meetings at several annual sessions. He was a Fellow of the American Medical Association.

The Laclede County Medical Society adopted the following resolutions on the death of Dr. Herbert:

WHEREAS, Our long time friend and faithful member of the Laclede County Medical Society, Dr. T. B. Herbert, Lebanon, has been called from ministrations to sick and suffering ones to whom he has given of his time and talent for many years so kindly, generously and efficiently with honesty of purpose, always feeling the responsibilities of his calling, ever sensing the true physician's attitude whether in home, in the office or among his conferees, has been translated to that fairer clime from whose bourn no traveler returns, therefore be it

*Resolved*, That we, as an organization and as personal friends, do with these few words give expression of our sorrow in the passing of Dr. Herbert, and he it further

*Resolved*, That a copy of these resolutions be spread on our minutes and that a copy be presented to Mrs. Herbert with the added promise that we are ever ready to help, aid and assist her in any way she may care to use us.

COMMITTEE.

### ROBERT D. HAIRE, M.D.

A tribute to Dr. R. D. Haire, Clinton, who died at his home April 13, 1930, was published in the Clinton *Eye* but was omitted from the June issue of our Journal. We are sure our members will be interested in reading this expression of appreciation of one of our oldest members and therefore it is given space here.

Dr. Haire arrived at Schell City, Mo., April 13, 1878, and just about an hour later he called on his "first case," who happened to be a negro man suffering with malaria. Dr. Haire said that he was the sickest man he had ever seen, and he gave him every attention and he got well.

Dr. Haire was born in Dade County, near Stockton, September 22, 1855. He worked hard for his education, and was graduated from the Missouri Medical College in St. Louis, in 1878, and went at once to Schell City to practice. Four years later, he went to Bellevue Hospital in New York City, for a year's postgraduate work. He then returned to Schell City, where, by his keen interest in suffering humanity, and his desire to relieve pain, he practiced successfully for twenty years, with the exception of the years he spent in school to further train himself in the latest methods. The year previous to his marriage, he

spent in the General Hospital, Vienna, Austria, to study surgery and learn to operate with the world's great surgeons. He had been unceasing and untiring in pursuing the study of science pertaining to his profession and every two years since he started to practice, he had spent several weeks in some hospital, clinic, or university, either in the United States or abroad. He went abroad eight times and visited all the countries of Europe. In addition to this, he traveled in Mexico, Alaska and other places of interest.

Travel was his only recreation. He told the *Eye* reporter a few days ago, "I never loafed in my life. A few years ago, I decided to spend two weeks on the East coast, resting. I got along fine the first day, but I could not endure it longer, so did not stay."

About 30 years ago, Dr. Haire decided to go to California, but before leaving came to Clinton to see Dr. Britts, and found that Dr. Johnson wished to sell his practice here, so Dr. Haire traded properties with him and Dr. Haire and family came to Clinton. His first office was on the second floor of what is now the Penney Building. At that time a grocery store was there, run by the late Dan Duden. He had been in his present office rooms, over the Clinton National Bank, about thirteen years.

Dr. Haire was more than a physician; he was a friend to each of his patients, mixing sunshine and kindly advice as to their life problems along with his medicine. He never forgot them, whether at home or abroad, and was especially fond of children and older people.

There is not a home in this entire countryside where he doctored that he was not as welcome day or night for a meal, as he was in his own home. There are few physicians such as he.

His was a busy life. He had not taken obstetrical cases for the last fifteen years, as through surgery he had such a large office practice. People came from many miles to consult him and be doctored by him. In the 35 years that he did obstetrics he was the physician at the birth of 1900 babies. Among them dozens of pairs of twins, but never any triplets. Just missed the only set by being out-of-town.

He deplored the fact that there are so few doctors now in the country. Most of them stay in the large cities or centers of populations, and there still exists a great need for the country doctor, who will give self, going day and night, no matter how bad the weather. He said: "Every young doctor should have at least ten years of general medical practice, for unless he does, he does not know the great need of the world. Nothing will take the place of bedside contacts, and the knowing of humanity in that personal way that only a physician can learn by general practice. I think that if I had my life to live over again, I would be a specialist."

Dr. Haire was studying in Vienna when the discovery of antitoxin for diphtheria was made in Berlin and he saw it used in the great hospitals there, with the almost miraculous effect, so he brought some home with him. A few days after his return he was called to a very sick child, who had diphtheria. He administered the antitoxin and to the amazement of all the child recovered. A few days later, in a medical journal, he saw where a noted St. Louis physician, who had brought some from abroad, had used it. Dr. Haire wrote for the date the doctor had used it and it was found that it was a few days after Dr. Haire, so as far as known Dr. Haire was the first to bring antitoxin to the United States. He was just as alert as this in everything and showed the world a country doctor could perform as great ministry to suffering humanity as the city man, although never attain fortune.

Miss Mary Pollock, who was Dr. Haire's office nurse for thirteen years, knew him at his best.

She brought to the Clinton *Eye* the following bit of verse which she said well described him:

#### THE OLD COUNTRY DOCTOR

Beneath his linen duster, sagged and bent,  
Day out, day in, for fifty years or more,  
Up the red clay hills and down, he went,  
His black square case upon the buggy floor.  
I've heard his horses pounding down the lanes,  
Lashed to desperate lather and to foam;  
I've seen him give the weary team the reins  
And worn out, sleep, the while they ambled home.  
His eyes were set in crinkled lines of mirth,  
Cheer was prescribed with bitter calomel.  
He was the arbiter of death and birth,  
The go-between of heaven and of hell.  
Tender as woman, steadfast as a rock,  
Small wonder all the hill-folk loved "Old Doc!"  
—Ethel Romig Fuller, Clinton *Eye*.

## SOCIETY PROCEEDINGS

### COUNTY SOCIETY HONOR ROLL FOR 1930

(UNDER THIS HEAD WE LIST SOCIETIES WHICH  
HAVE PAID DUES FOR ALL THEIR MEMBERS)

#### HONOR ROLL

Mercer County Medical Society, December 12, 1929.

Madison County Medical Society, December 16, 1929.

Benton County Medical Society, January 8, 1930.

Pulaski County Medical Society, January 11, 1930.

Webster County Medical Society, January 24, 1930.

Chariton County Medical Society, January 27, 1930.

Ralls County Medical Society, March 6, 1930.

Camden County Medical Society, March 10, 1930.

Dent County Medical Society, April 2, 1930.

Schuyler County Medical Society, April 5, 1930.

Platte County Medical Society, April 7, 1930.

Christian County Medical Society, April 7, 1930.

Macon County Medical Society, April 12, 1930.

Miller County Medical Society, April 14, 1930.

Phelps County Medical Society, April 25, 1930.

Atchison County Medical Society, April 30, 1930.

Lafayette County Medical Society, May 9, 1930.

### MISSOURI STATE MEDICAL ASSOCIATION

Seventy-Third Annual Session, Hannibal

May 12, 13, 14, 15, 1930

### MINUTES OF THE HOUSE OF DELEGATES

Elks' Club, Monday, May 12, 1930—

#### Morning Session

The first meeting of the House of Delegates of the Seventy-Third Annual Meeting of the Missouri State Medical Association, held at the Elks' Club, Hannibal, convened at 9:45 a. m., Monday, May 12, 1930, the President, Dr. T. W. Cotton, Van Buren, presiding.

At roll call ninety-one officers and delegates responded as follows:

#### Officers

President.....T. W. Cotton, Van Buren  
President-Elect...W. C. Gayler, St. Louis  
Secretary-Editor..E. J. Goodwin, St. Louis  
Treasurer.....G. W. Hawkins, Salisbury

#### Councilors

2nd District.....Daniel Morton, St. Joseph  
4th District.....Geo. M. Bristow, Princeton  
5th District.....J. R. Bridges, Kahoka  
7th District.....H. B. Goodrich, Hannibal  
8th District.....B. Kurt Stumberg, St. Charles  
9th District.....A. R. McComas, Sturgeon  
10th District.....Don A. Barnhart, Huntsville  
11th District.....J. H. Timberman, Chillicothe  
13th District.....O. S. Gilliland, Kansas City  
14th District.....C. T. Ryland, Lexington  
15th District.....L. J. Schofield, Warrensburg  
16th District.....J. T. Hornback, Nevada  
17th District.....Guy Tittsworth, Sedalia  
18th District.....W. Logan Allee, Eldon  
19th District.....J. S. Summers, Jefferson City  
20th District.....Ralph L. Thompson, St. Louis  
26th District.....W. H. Breuer, St. James  
27th District.....J. C. B. Davis, Willow Springs  
28th District.....W. M. West, Monett  
29th District.....R. M. James, Joplin

#### Delegates

COUNTY	DELEGATE
Adair.....	E. S. Smith, Kirksville
Audrain.....	R. W. Berrey, Mexico
Bates.....	Wm. H. Allen, Rich Hill
Boone.....	F. G. Nifong, Columbia
Buchanan.....	W. L. Kenney, St. Joseph
Buchanan.....	E. A. Gummig, St. Joseph
Caldwell.....	Tinsley Brown, Hamilton
Cape Girardeau.....	B. W. Hays, Jackson
Carroll.....	R. F. Cook, Carrollton
Chariton.....	Ralph M. Fellows, Salisbury
Christian.....	R. R. Farthing, Ozark
Clark.....	John M. Riggs, Wayland
Franklin.....	B. E. Mankopf, Washington
Gentry.....	W. S. Campbell, Albany
Greene.....	P. F. Cole, Springfield
Greene.....	J. W. Love, Springfield
Grundy.....	J. B. Wright, Trenton
Holt.....	J. F. Chandler, Oregon
Howell-Oregon.....	P. D. Gum, West Plains
Jackson.....	Harry M. Gilkey, Kansas City
Jackson.....	H. L. Mantz, Kansas City
Jackson.....	W. F. Holbrook, Kansas City
Jackson.....	C. E. Nickson, Independence
Jackson.....	C. B. Summers, Kansas City
Jackson.....	Clyde O. Donaldson, Kansas City
Jackson.....	G. Wilse Robinson, Kansas City
Jackson.....	John G. Hayden, Kansas City
Jackson.....	Jabez N. Jackson, Kansas City
Jackson.....	Ralph W. Holbrook, Kansas City
Jackson.....	A. W. McAlester, Kansas City
Jasper.....	L. C. Chenoweth, Joplin
Jasper.....	L. B. Clinton, Carthage
Lafayette.....	J. De Voine Guyot, Higginsville
Lawrence-Stone.....	R. D. Cowan, Aurora
Lewis.....	J. C. Brown, Lewiston
Macon.....	W. A. Welch, Calleo
Marion.....	C. W. Hamlin, Palmyra
Mercer.....	C. J. Laws, Princeton
Miller.....	E. C. Shelton, Eldon
Mississippi.....	A. H. Marshall, Charleston
Moniteau.....	J. P. Burke, Jr., California
Nodaway.....	C. D. Humbert, Barnard
Pettis.....	F. B. Long, Sedalia
Phelps.....	S. L. Baysinger, Rolla
Pike.....	M. O. Biggs, Louisiana
Ralls.....	T. J. Downing, New London
Randolph.....	C. H. Dixon, Moberly
St. Charles.....	A. P. Erich Schulz, St. Charles
St. Francois-Iron.....	W. W. Johnston, Farmington
St. Louis.....	O. W. Koch, Clayton



St. Louis.....C. P. Dyer, St. Louis  
 St. Louis City.....C. H. Neilson, St. Louis  
 St. Louis City.....H. G. Lund, St. Louis  
 St. Louis City.....C. E. Burford, St. Louis  
 St. Louis City.....W. T. Coughlin, St. Louis  
 St. Louis City.....Lee Dorsett, St. Louis  
 St. Louis City.....E. P. North, St. Louis  
 St. Louis City.....C. D. Pickrell, St. Louis  
 St. Louis City.....H. S. Langsdorf, St. Louis  
 St. Louis City.....Howard H. Bell, St. Louis  
 St. Louis City.....Joseph C. Peden, St. Louis  
 St. Louis City.....E. C. Funsch, St. Louis  
 St. Louis City.....R. B. H. Gradwohl, St. Louis  
 St. Louis City.....Wm. J. Gallagher, St. Louis  
 St. Louis City.....Robert Vinyard, St. Louis  
 Shelby.....P. C. Archer, Shelbyville  
 Vernon-Cedar....E. H. Liston, Nevada

Dr. Jabez N. Jackson, Kansas City, moved that the reading of the minutes of the last Annual Meeting be dispensed with and adopted as published in THE JOURNAL. Seconded and carried.

The President read his message and recommendations as follows:

### PRESIDENT'S MESSAGE AND RECOMMENDATIONS

It has been a custom for many years in this Association that the President shall address the House of Delegates. Complying with this custom, the privilege is now mine and while I have nothing of very great importance to report, it is a pleasure briefly to bring to your consideration a few matters that have been of interest to me and I hope will appeal to you as being worthy of mention.

#### Enlarged Territory for Scientific Program

The idea originated in southeastern Missouri, I think, to form districts of five counties which would unite to hold their medical society scientific programs in lieu of the one-county or two-county plan, each county holding its own organization for business purposes. The town selected for the meeting acts as host for that occasion and rotation prevails. I had the pleasure of attending one of these meetings at Kennett. Some fifty physicians in that vicinity had requested the Committee on Postgraduate Course to furnish speakers and two physicians from St. Louis read papers. This was followed by a very lively discussion by the members, some of whom had been in active practice many years, their rich experiences being a fascinating feature of the evening. The essayists handled their subjects ably and the feeling prevailed that every one was well repaid for the trip.

Some of the advantages of this plan are, that with better roads the distance is no particular obstacle, and even in the sparsely settled counties the number of physicians is sufficient to make the meeting interesting; it enlarges one's acquaintance with his neighbors in adjoining counties, creates a better feeling of professional comradeship, and makes the scientific program more interesting and "peppy." It occurs to me that this plan might be utilized by other sections to their mutual advantage when the number of physicians is too small for successful programs as an individual society.

#### Publicity

Of course "the meek shall inherit the earth," and modesty is a fine characteristic of the profession of medicine, but could it be possible that we are overmodest in the matter of publicity,—that kind of publicity that will inform the people on sanitation, hygiene, control of epidemics and allied subjects? The public should be instructed in the art of staying well, which could be done through the newspapers, which have always shown a commendable willingness in publishing news items of this kind, and over the radio, all under the direction of the Missouri State Medical Association, thus disseminating wholesome medical information that might be a blessing to the populace and do no harm to the proprieties of ethical medicine. To my way of thinking this might be a real service to humanity,—and the profession of medicine is a service institution.

While I am on this subject of service, I have in mind another matter that seems to me of prime importance to the sanitary well-being of a considerable portion of Missouri's population. I refer to the open, above-ground water-closet, prevalent in small towns and rural communities, and in some towns that are not so small. Only a few days ago I was in a town of about fifteen hundred people, which in some respects is apparently progressive and up-to-date but woefully insanitary. An open toilet, to which flies had complete and unobstructed access, was situated within easy fly distance of a grocery offering for sale almost all kinds of food stuff, including of course such delicacies as strawberries in season, and these not always well screened. This picture is not

overdrawn, neither is it a rare occurrence in Missouri towns to find neglected sanitation of this class. It is a tribute to the sturdy physical resistance of Missouri's native stock that we do not all succumb in childhood to dysentery, infantile paralysis, or other fly-borne infections. The State Board of Health has not neglected to call attention to this, and they should be supported by the medical profession as a whole.

#### State Board of Health

The Missouri statute provides that, "The State Board of Health shall have general supervision over the health and sanitary interests of the citizens of the state. It shall be their duty to recommend to the General Assembly of the state such laws as they may deem necessary to improve and advance the sanitary condition of the state; to recommend to the municipal authorities of any city, or to the county court of any county, the adoption of any rules that they may deem wise or expedient for the protection and preservation of the health of the citizens thereof."

Under the vast scope of this statute the board of health has large powers; in fact, power almost unlimited under certain conditions. I believe on one occasion the Federal Supreme Court held that a ruling of a board of health took precedence over international law. Without elaborating on the manifold duties, such as sanitation, control of epidemics, school inspection, and other activities not necessary to mention, this board can be of wonderful assistance to the profession, especially in rural Missouri, by extending somewhat the bacteriological laboratory service. I have on a number of occasions availed myself of this splendid service and it has served me well in such diseases as typhoid fever, where the urgency of the situation was not acute; but when I have a suspected diphtheria the time required to get a specimen from southern Missouri to Jefferson City makes this procedure wholly impracticable. The thought suggests itself that some arrangement might be made whereby laboratories would be established over the state, under the management of the State Board of Health so that this service might be available to the profession. I know of no other function of the board that would assist me more than this, if I could have a return report in a few hours instead of two or three days.

Again, the conservation of the public health is such an immense task and of such tremendous importance to the public weal that in our humble opinion the board can occupy its time profitably in the discharge of these duties without the added task of licensure, the duties of which are largely different in character. When we consider this phase of the subject we have our attention called to other states and we ask ourselves, "How do our neighbors in the Union of States handle this situation?" Let us see: The following have one board for licensure and another board, wholly different, for the preservation of health: Arizona, Arkansas, California, Colorado, Connecticut, Delaware, District of Columbia, Florida, Georgia, Idaho, Illinois, Indiana, Kansas, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Montana, Nebraska, Nevada, New Hampshire, New Jersey, New Mexico, New York, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, South Carolina, Tennessee, Texas, Utah, Vermont, Virginia, Washington, Wisconsin, Wyoming, and the dependencies, Alaska, Hawaii, and the Philippines. The remainder have only one board with the dual function. I leave the number with you. Suffice it to say, Missouri is one. Is it wise?

One other thought in this connection, regardless of whether some time there be a board of licensure, as now obtains in forty-four states and territories, the appointment should be made on merit only and not for political reasons. Political appointments to positions that have to do with public health, on the theory that "to the victor belongs the spoils," have been made in Missouri so long that it is not very clear when it began. One thing is perfectly clear, however, and that is that both Democrats and Republicans have followed it, even to the selection of superintendents of hospitals for the insane. If there is any one class of human beings that have a supreme claim upon those in power for the very best ministrations that medical science has to offer it is the mentally dead—the insane.

Psychiatrists are not made in a day or a year and if a competent man in this kind of position should be displaced for one less competent for political reasons it would be going far afield, in fact, near the frontier of exploitation. If I am dangerously ill and there is a man who can make for me the best possible chance for recovery, I want that man and will not stop to inquire the color of his hair, what church he attends, or whether he is wet or dry.

#### Annual Dues

In one county society, and possibly others, there has been some discussion of state dues, and since most questions have two sides worthy of consideration it is perhaps wise that this matter should be discussed at this time, since I feel that there will be no difficulty of agreement to the plan of making the dues just as small as consistent with the successful management of the Association's business. This strikes at once at the program by which we wish to work and what we will attempt to do for the profession of the state through the channel of our Association.

For guidance, may we again look to see what other state

societies under like conditions to ours are doing? We have done this and our findings are in part as follows: (Taken from 1929 reports.)

State	No. of Members	Dues
California	4770	\$10.00
Indiana	2792	7.00
Iowa	2366	7.50
Michigan	3518	8.00
Minnesota	2223	15.00
Nebraska	1009	8.00
New Jersey	2643	10.00
New York	12144	10.00
Oregon	1628	20.00
Pennsylvania	7975	7.50
Texas	3789	10.00
Wisconsin	1992	12.00
Missouri	3312	8.00

Thus you will observe that of the twelve states, exclusive of Missouri, there is an average membership of 4180 with average dues of \$10.58, or \$2.58 more than we are paying. Compared with other states, therefore, our figures speak for themselves as to whether they are excessive.

It is a well demonstrated proposition that any business or organization to make itself effective must be reasonably financed, and we would like to suggest that there are some lines of activity in which we have already engaged and into which it occurs to me we might go a little more actively with profit. For instance, we might plan to do a little more for the unfortunate member who finds himself entangled in the meshes of a miserable malpractice suit, with possibly very limited means of his own to defend himself, which is not an unusual condition with Missouri physicians. Let us give our Committee on Defense a little more latitude and a little more money for defense should the exigencies of the situation demand. Stranger things than this have occurred, and any member of this Association might be forced into court before the week-end. Nobody is immune to this sort of thing and whether imminent or remote nobody knows. What is a dollar or two on the annual dues compared with this worry? True, many physicians carry insurance on their own initiative for protection, but there are many members of this Association who do not. One member told me a while ago that he was not financially able. The more protection we furnish our members the more inducement is offered to become members. To many this is one of our very best drawing cards.

Again, the postgraduate arrangement now getting fairly under way appears to be the most constructive and beneficent enterprise along educational lines that has engaged our attention in recent years. The Kennett meeting alone was probably worth half the money expended during the year by the Committee on Postgraduate Course for this instruction work, and from expense bills for this purpose coming to my office I take it that the profession is looking with favor on this activity. For those counties that have not so far taken advantage of this splendid service I would like to remind you that you can have this postgraduate work without expense to you, it being supplied by the Association on request to the Committee. So far as I am advised, each and every society that has used the service wants the work continued. It is an outstanding effort to aid the profession in rural Missouri and as such should have a most cordial welcome at our hands.

These are only two lines of activity that are more valuable than the small differential in dues. There are others that may also be full of promise. On two occasions we have aided county societies financially. Do not understand that I favor useless accumulation of money, but rather a happy medium between prodigality and parsimony so that when the affairs of the Association have been administered with business methods and economy we may be able to provide means for any cause deemed advisable for the welfare of the Missouri State Medical Association and its members. Then any accumulation of finances in excess should certainly be kept in the pockets of its members. Finally, it is well to remember in this consideration that collections for the year are practically all made at this time, but the expenses go on through the subsequent months until another collection period.

### Full Four Years in Medicine

Many times in the past the Missouri State Medical Association has gone on record as favoring the reestablishment of the full four-year course of medicine at the State University. The present arrangement of two years only thus compelling medical students to finish elsewhere, works a hardship and sometimes it is even impossible to secure admission in a class A school. Again, the medical education could be completed much more cheaply in the State University thus enabling worthy boys and girls of limited means to become physicians and supplying the deficit of physicians that is becoming more acute each year in rural Missouri. The time seems more propitious now than at any time in many years.

I therefore recommend that we call upon the Board of

Curators of the State University to reestablish the four-year medical course, and that we pledge them our support in an earnest effort to do so.

Respectfully submitted,  
T. W. COTTON.

Dr. Jabez N. Jackson, Kansas City, moved that the President's message and recommendations be referred to the Council. Seconded and carried.

The President announced the appointment of the following reference committees:

#### Reference Committee on Constitution and By-Laws

Dr. A. R. McComas, Sturgeon, Chairman.  
Dr. W. H. Breuer, St. James.  
Dr. P. D. Gum, West Plains.

#### Reference Committee on Resolutions

Dr. B. W. Hays, Jackson, Chairman.  
Dr. C. W. Hamlin, Palmyra.  
Dr. C. D. Pickrell, St. Louis.

#### Reference Committee on Miscellaneous Affairs

Dr. G. Wilse Robinson, Kansas City, Chairman.  
Dr. C. D. Humbert, Barnard.  
Dr. T. J. Downing, New London.

Dr. Howard B. Goodrich, Hannibal, reported for the General Committee on Arrangements, as follows:

### REPORT OF THE GENERAL COMMITTEE ON ARRANGEMENTS

The first entertainment by the Marion County Medical Society is a banquet at the Country Club tomorrow evening at 6:30. There will be cars in front of the Mark Twain Hotel at six o'clock to take you out. We hope everybody will attend.

The golf tournament will take place Tuesday and Wednesday. You can register at the stenographer's desk. The \$2 fee entitles you to play at any other time.

The Rotary Club, which meets at the Mark Twain Hotel at 12:15 on Tuesday, is anxious to have visiting members attend; also the Lions Club which meets on Wednesday at 12:15 extends an invitation to any member to meet with them.

The Missouri University Alumni Luncheon will be held at the Mark Twain Hotel on Wednesday from 12:00 to 1:30.  
HOWARD B. GOODRICH, Chairman,  
D. A. BARNHART,  
B. KURT STUMBERG.

On motion the report of the General Committee on Arrangements was adopted.

The Secretary, Dr. E. J. Goodwin, St. Louis, read his report as follows:

### REPORT OF THE SECRETARY

The numerical strength of the Association maintains its level, in fact there is an increase of fourteen over the number of members reported on May 1, 1929.

There were no state legislative activities but several measures in Congress were brought to our notice by the American Medical Association that required the attention of our members. One of these was the effort of Representative Porter, of Pennsylvania, to change the method of handling narcotics. Mr. Porter introduced three different bills on this subject, all of them objectionable from the standpoint of the practitioner of medicine. The chief objection was the attempt to create a dictator in the Bureau of Narcotics who would have practically sole authority to decide who might handle narcotics. The bills affect not only physicians but pharmacists, veterinarians, and dentists. The American Medical Association made a vigorous protest against the bills and Mr. Porter finally wrote a third bill, H. R. 11143, which had some of the objectionable features eliminated. It, however, is still subject to objection and we have asked our senators to postpone action on the bill until the American Medical Association could be heard. Members of the numerous county societies have sent their protests to our senators at Washington.

A new bill has been introduced in Congress which practically perpetuates in every essential detail the Sheppard-Towner Maternity and Infancy Act. This bill is known as the Jones-Cooper Maternity and Infancy Bill, S. 255. It has been favorably reported by the Senate Committee on Commerce and is now in the Senate for action. The policy of this bill is in opposition to the policy adopted by the House of Delegates of the American Medical Association at



St. Louis in 1922. The American Medical Association is opposing the passage of this bill and they ask us to send protests to our senators and representatives against its passage.

Several amendments to our Constitution and By-Laws will be offered by the Committee on Constitution and By-Laws which should have your careful attention.

The office of the Association continues to be a clearing house for information to lay organizations and newspapers on questions of public health protection and medical advertising.

We have lost by death one councilor, Dr. Roger W. Gay, Ironton, Councilor of the Twenty-Fifth District, who died on March 15.

The dinner to the county society secretaries will be given in the Mark Twain Hotel, at 6:00 o'clock on Wednesday. To this dinner the officers and councilors are invited to meet with the secretaries.

The terms of the councilors in the odd numbered districts expire this year as do the terms of three delegates to the American Medical Association.

### Status of Membership

Number of Members, May 1, 1929.....	3313
New Members .....	197
Reinstated .....	43
Total .....	3553
Resigned .....	14
Transferred .....	62
Dropped .....	95
Deceased .....	54
Suspended .....	1

Total, May 1, 1930..... 3327

Respectfully submitted,

E. J. GOODWIN, Secretary.

On motion, duly seconded, the Secretary's report was referred to the Council.

The Treasurer, Dr. G. W. Hawkins, Salisbury, read his report as follows:

### REPORT OF THE TREASURER

#### General Fund

<i>Receipts</i>	
Balance May 11, 1929.....	\$16,547.17
County dues .....	22,590.00
Advertising .....	6,284.71
Medical Protective Company (Rent).....	3,228.73
Exhibit Space .....	512.50
Interest 1-1-29 to 12-31-29.....	232.00
Total .....	\$49,395.11

#### *Disbursements*

Vouchers paid .....	37,159.03
Balance, May 10, 1930.....	\$12,236.08

### St. Louis Medical Society

#### Executive Secretary's Salary Fund

<i>Receipts</i>	
Transferred from General Fund.....	\$ 5,000.00
Total .....	\$ 5,000.00

#### *Disbursements*

Vouchers paid .....	1,458.31
Balance, May 10, 1930.....	\$ 3,541.69

### Legislative Fund

<i>Receipts</i>	
Balance, May 11, 1929.....	\$ 1,680.99
Transferred from General Fund.....	2,902.00
Interest 1-1-29 to 12-31-29.....	30.00

Total .....

#### *Disbursements*

Vouchers paid .....	1,251.70
Balance, May 10, 1930.....	\$ 3,361.29

### Defense Fund

<i>Receipts</i>	
Balance, May 11, 1929.....	\$ 2,014.27
Interest 1-1-29 to 12-31-29.....	60.00

Total .....

#### *Disbursements*

Vouchers paid .....	\$ 200.00
Balance, May 10, 1930.....	\$ 1,874.27

### Sinking Fund

<i>Receipts</i>	
Balance, May 11, 1929.....	\$ 706.02
Interest 1-1-29 to 12-31-29.....	21.00

Balance, May 10, 1930.....\$ 727.02

#### *Recapitulation*

May 10, 1930	
General Fund .....	\$12,236.08
St. Louis Medical Society Executive Secretary's Salary Fund .....	3,541.69
Legislative Fund .....	3,361.29
Defense Fund .....	1,874.27
Sinking Fund .....	727.02

Total .....

G. W. HAWKINS, Treasurer.

On motion, duly seconded, the report of the Treasurer was referred to the Council.

The report of the Committee on Scientific Work was read by the Chairman, Dr. E. J. Goodwin, St. Louis, as follows:

### REPORT OF THE COMMITTEE ON SCIENTIFIC WORK

Your Committee on Scientific Work apologizes for crowding the program with fifty-two papers to be read in the six scientific sessions, one of which is curtailed because of the meeting of the House of Delegates. There were so many offerings by members to read papers at this session that the Committee was compelled to accept as many as possible even though we did crowd the program unduly. An added reason for these acceptances is that there were seventeen offerings by men who have never appeared on our program. If the essayists will endeavor to limit their contributions to the twenty minutes allowed by the By-Laws it is believed that every paper can be read without encroaching on the next day's program. In spite of our accepting so many papers the Committee was compelled to disappoint ten members who had offered to read papers.

The Committee is happy to report that Dr. William Gerry Morgan, Washington, D. C., President-Elect of the American Medical Association, will be our guest and address us at the Wednesday evening session. Your Committee invited several other prominent members of the profession in other states but was unfortunate in not finding them free to accept our invitation because of conflict with other meetings.

We have continued the plan of presenting symposiums; four of these are scheduled for this session, namely, Symposium on Contagious Diseases, Symposium on Chest Diseases in Childhood, Symposium on Gynecology and Obstetrics and Symposium on Abdominal Surgery.

E. J. GOODWIN, Chairman,  
ROBERT F. HYLAND,  
JAMES E. STOWERS.

On motion the report of the Committee on Scientific Work was adopted.

Dr. W. Logan Allee, Eldon, chairman of the Committee on Public Policy, read his report as follows:

### REPORT OF THE COMMITTEE ON PUBLIC POLICY

The status and final disposition of all legislative acts of interest to our Association during the 1929 session of the legislature was reported by this Committee at the annual meeting in May, 1929, except House Bill 660. This bill provided that osteopaths should be entitled to use narcotics and was defeated in the House in the last hours of the 1929 session. However, in November, 1929, the Attorney-General made a ruling to the effect that osteopathic physicians of Missouri, duly licensed to practice their profession in this state, are authorized under the law to use narcotics when the use of narcotics is necessary under the accepted practice.

This committee, cognizant of the appeal made by the American Medical Association to Congress that cooperation be established between the federal narcotic service and the proper authorities of the several states, has been active in protesting to our Senators in Congress the passage of the Porter Bill, H. R. 11143, without the amendments suggested by the American Medical Association. The Porter bill if passed naturally leads to a federal narcotic dictator with uncontrolled power to assume charge of the professional use of narcotics. The amendments requested require the federal narcotic service to cooperate with the states in the enforcement of narcotic laws and authorize the importation of the rarer derivatives of opium and coca leaves not manufactured in the United States for the use in research by accredited laboratories.

W. LOGAN ALLEE, Chairman.

On motion, duly seconded, this report was referred to the Committee on Miscellaneous Affairs.

Dr. J. C. B. Davis, Willow Springs, chairman of the Committee on Publication, read his report as follows:

REPORT OF THE COMMITTEE ON PUBLICATION

The 26th volume of THE JOURNAL was completed with the December, 1929, issue. During the twelve months of that year THE JOURNAL printed 84 original articles and 25 articles under the Department of Washington University Clinics making a total of 109 original articles. There were 63 editorials, 63 obituaries, 159 reports of county societies, and the report of our Seventy-Second Annual Meeting, the report of the 53rd Annual Meeting of the Southeast Missouri Medical Association, and 14 reports of the Kansas City Academy of Medicine, and numerous miscellaneous items; 119 books were received for review and 88 reviews were published. These books were sent to the medical libraries of the St. Louis Medical Society, the Jackson County Medical Society, and some highly technical works to the medical library at the State University. THE JOURNAL contained 622 pages of reading matter and 502 pages of advertising, the latter earning \$9,868.62. The total expense including cost of illustrations was \$8,671.21, leaving a profit of \$1,253.21. The largest issue was for May, 1929, which contained 108 pages. The smallest issue was for April, 1929, which contained a total of 80 pages.

Members are very generous in sending their contributions for publication so that the editor has sometimes found it difficult to publish papers promptly. There are at this writing 25 manuscripts awaiting publication.

J. C. B. DAVIS, Chairman,  
M. A. BLISS,  
G. WILSE ROBINSON.

On motion, duly seconded, this report was referred to the Council.

In the absence of any member of the Committee on Defense the Secretary read the report of that committee and announced that he was doing so at the request of the chairman, Dr. C. E. Hyndman, St. Louis. The report follows:

REPORT OF THE COMMITTEE ON DEFENSE

Disposition of Cases

Cases pending May 1, 1929.....	14
Threats pending May 1, 1929.....	3
New cases during the year (including three threats which developed into suits).....	8
New threats during the year.....	5
Threats which have not developed into suits during year	3
Cases settled during the year.....	8
Threats pending May 1, 1930.....	5
Cases pending May 1, 1930.....	14
Financial Assistance Rendered During the Year...\$200.00	

Of the eight cases settled during this year three were by verdict in favor of the physician.

Three plaintiffs failed to prosecute and the cases were dismissed.

One case of long standing had a verdict in favor of the plaintiff. It was appealed to the Supreme Court and was remanded for new trial. This case was settled for one-fifth the amount of the original verdict.

One case against a member who was in poor health was compromised for five hundred dollars without going to trial.

These figures do not represent the entire number of malpractice suits in the state. Many do not report their cases to this committee or ask for aid.

C. E. HYNDMAN, Chairman,  
M. L. KLINEFELTER,  
O. B. ZEINERT.

This report was referred by the President to the Committee on Miscellaneous Affairs.

Dr. Charles H. Neilson, St. Louis, chairman of the Committee on Postgraduate Course, read his report as follows:

REPORT OF THE COMMITTEE ON POSTGRADUATE COURSE

There were 56 speakers sent to 37 meetings in 14 counties. Ten of the 56 speakers were sent to more than one meeting. Practically every section of the state was visited. The subjects presented represent a wide range of conditions, the topics generally being selected by the county societies. The expenses of the Committee were \$1,072.17.

Counties to which speakers were sent and the number of speakers follow:

County	No. of Speakers Sent
Boone .....	2
Butler .....	2
Gasconade-Maries-Osage .....	4
Greene .....	3
Henry .....	2
Howell-Oregon-Texas .....	2
Jasper .....	14
Marion .....	2
Nodaway .....	8
Pike .....	3
Randolph-Monroe .....	1
St. Francois-Iron .....	8
26th Councilor District .....	3
Five County Group (Composed of Butler, Dunklin, New Madrid, Pemiscot, and Stoddard Counties)...	2

Your Committee feels that this is an important work for the profession of the state. Some years ago I was giving a lecture at the medical school and a doctor sitting in the back row came to me afterwards and said, "Doctor, you almost speak a strange language." I asked what he meant and he said, "You are so far ahead of me that I hardly understood it." He had been practicing for twenty-five years in a community by himself and apparently had not attended many conventions or listened to many programs. I feel that our societies ought to utilize the possibilities of this postgraduate work. Your Secretary and the Committee have been working on this, trying to pick out men who are actively engaged in teaching, men who are masters of the subject they discuss, and send them to these county societies.

I wish to comment favorably on the recommendation of the President that larger groups of members be gathered together so that when these men are sent out they may have an audience. It is very discouraging for a speaker to go some two hundred miles or more to a county meeting and then find only two or three men there. We have had that experience repeatedly. I have put myself out to go a long distance, to find that in a county of fifteen or twenty members there would be three or four present. I feel that you men in the country districts and rural towns should rally to these men who come to you. I have been asked, "How is it that you seem to know the literature so well?" I reply, "I don't know, except that I read, I attend conventions and hospital conferences, and I become acquainted with my fellow doctors." And that is what this means. When a man of experience and training comes to you I am sure it would be well worth your time to come together in larger groups and hear him, and also to call for these men when you can arrange a meeting.

C. H. NEILSON, Chairman,  
J. R. McVAY.

On motion, duly seconded, the report was referred to the Council.

Dr. Joseph W. Love, Springfield, chairman of the Committee on Medical Economics, reported as follows:

REPORT OF THE COMMITTEE ON MEDICAL ECONOMICS

The Committee on Medical Economics has no formal report to make at this meeting. While we have exchanged ideas by correspondence and have had some correspondence with members of the profession in different parts of the state the chairman has not thought wise to try to compose a formal report.

I felt very unequal to the task when I was appointed on this committee. I suppose medical economics means the art of making a living in the practice of medicine, and I suppose the man bringing that subject before his confreres should be a man who has had some experience on that question. I know very well that we get very few suggestions as to the progress and improvement in medical economics from those that are well-to-do and getting along well. It is only those who feel the pinch that are likely to suggest any improvement. The Scripture says the ox loweth not over his fodder, neither does the wild ass bray when he has grass. I suppose that is the reason I am so vociferous over medical economics. I have taken to read a great many of the essays and communications that appear in the literature on the subject of medical economics in the last few years, especially since the committee on the cost of medical care has been under way. With very few exceptions, I can say that a vast majority of this stuff is not worth a tinker's dam. I perhaps should explain to the stenographer that the phrase "a tinker's dam" is not swearing. It originated one hundred and fifty years ago when the tinkers used to go throughout England repairing kettles and pans, and when the handle of a stew-pan was broken off they would take some suitable material and make what they called a "dam" which would hold the broken part until it could be repaired and then it was knocked off as worthless and thrown away. So anything that was worthless was spoken of as not being worth a tinker's dam. I explained that to a lady not long ago and she



said, "That is very interesting, but I am rather sorry to be disillusioned, because I have been using that expression all my life, thinking I was swearing."

The facts and information obtained by the committee on the cost of medical care and the treatment of the sick will be based on so-called statistical methods in all probability. Statistical methods are the result of averages, and it will be the average income of the doctor, the average cost of care of the patient, the average income of the people. Those who think carefully about it will realize that there is no such thing as an average income, an average man's expenses, the average health. That is purely hypothetical. It is valuable for statistical purposes but just because the average income of the members of the profession here present might be \$5,000 or \$6,000 a year I am not helped if my income is \$1500 a year. Every man is thinking about his own income and facts based on averages oftentimes will not help the man that is most interested, and he is the man that the shoe pinches. So some sort of economic provision that would enable the people who require medical services to make provision for it beforehand by some kind of insurance, or afterwards by some sort of deferred payments, it seems to me would be more practicable and efficient than any sort of appeal to charity, on the one hand, or to government assumption of the service by government-paid employees, which we are trying to get away from. This whole matter is being considered by the distinguished committee that has been appointed; they are still at work but have not reported, and the Committee on Medical Economics of this Association therefore feels it is only fair to bide our time and wait until that report is forthcoming.

On the principle that "He also serves who only stands and waits" the committee is not erring greatly in proceeding slowly in regard to the formulation of some resolutions to be presented here and which we hope every one will approve. I therefore thank you for your kind and generous reception and hope that my scattered remarks will be received as a report.

DR. JABEZ N. JACKSON: I think it might be apropos to inform the House of Delegates concerning the action of the Jackson County Medical Society in the last year on this subject of medical economics. Under the administration of Dr. Ralph W. Holbrook, the best president we have had in twenty-five years, we adopted a change in our Constitution and By-Laws and among other committees appointed was a committee on medical economics, a standing committee. I presume the country doctor is not so much worried as the city doctor over the question of the abuse of clinics. In the cities we have many philanthropic people who imagine that if they organize a clinic the doctors should serve free of charge, and in many of these clinics patients are admitted who are abundantly able to pay for the services of the private doctor.

This committee consists of five men each of whom serves for five years. In other words, the committee will stay on the job long enough to be familiar with things. This committee was instructed to make a survey of the institutions and clinics calling on the doctors for free service to find out whether or not they were keeping within the confines of legitimate free service. This committee will inspect the clinics of Kansas City and make their report. To put teeth into the resolution that was passed it contained the provision that when an institution has been found not to respect the rights of the doctors no member of the Jackson County Medical Society can continue to serve that clinic or institution and maintain his membership in the Society.

On motion, duly seconded, the report of the Committee was referred to the Reference Committee on Miscellaneous Affairs.

In the absence of the chairman of the Committee on Revision of the Constitution and By-Laws, Dr. M. P. Overholser, Harrisonville, or any other member of the committee, the Secretary read the report of that committee at the request of the chairman, as follows:

#### REPORT OF THE COMMITTEE ON REVISION OF THE CONSTITUTION AND BY-LAWS

Amend Article IX, Sec. 1, of the Constitution by adding after the word "President-Elect" in the second line, the words "three Vice Presidents," so that the Section shall read:

"Sec. 1. The officers of this Association shall be a President, a President-Elect, three Vice Presidents, a Secretary, a Treasurer, and twenty-nine Councilors, more or less, as shall be determined by the House of Delegates from time to time."

Amend Chapter V, Sec. 2, of the By-Laws by striking out the following words, "ex officio, shall act for the President in his absence or disability. If the office of President should become vacant the President-Elect shall succeed to the presidency," and inserting in their place the following words: "and of the Executive Committee of the Council, ex officio,

and shall attend all meetings of these bodies," so that the Section as amended shall read:

"The President-Elect shall be a member of the Council and of the Executive Committee of the Council, ex officio, and shall attend all meetings of these bodies."

Amend Chapter V of the By-Laws by adding a new section to be known as Section 2a, as follows:

"Sec. 2a. The Vice Presidents shall assist the President in the discharge of his duties. In the event of death, resignation, or removal of the President, the Council shall select one of the Vice Presidents to succeed him."

Amend Chapter VI, Sec. 7, of the By-Laws by deleting the word "December" in the fourteenth line and substituting the word "November," so that the annual meeting of the Council will occur in November instead of December.

Amend Chapter XII, Sec. 1, of the By-Laws by deleting the word "majority" in line 2 and inserting the words "two-thirds"; and by deleting the words "at that session" in line 3 and inserting the words "and voting," so that the Section when amended shall read:

"Sec. 1. These By-Laws may be amended at any Annual Session by a two-thirds vote of the delegates present and voting, if the proposed amendment has been properly submitted to the House of Delegates and has lain on the table for one day."

On motion, duly seconded, the report of the Committee on Revision of the Constitution and By-Laws was referred to the Reference Committee on Constitution and By-Laws.

The special committee appointed to consider the Widow's Fund, group insurance and Memory Fund, Dr. Frank I. Ridge, Kansas City, chairman, reported as follows:

#### REPORT OF SPECIAL COMMITTEE

We have two reports to make. The first is in regard to the Widow's Fund.

We have had two meetings and have gone into the proposition of insurance of different types—group insurance in old line companies and other companies—in our effort to analyze the situation. Primarily, the Widow's Fund was an insurance proposition; secondarily, to get a closer feeling of mutual understanding and responsibility among the members of the Missouri State Medical Association. In other words, to a certain extent to demonstrate that I am my brother's keeper. Aside from the monetary standpoint, that purpose entered into our deliberations.

We based our deliberations on the operation of Masonic and other bodies for many years and submitted to the Council the proposition which we have here and which was outlined in the May issue of THE JOURNAL.

The life insurance expectancies from the American tables and the mortality rate led us to the conclusion that in justice to the younger members we should assume risks only on individuals under 55 years of age. Of course that is optional with this Association. In taking them after 55 we assume a mortality rate which is greater than we feel the Fund could stand in the beginning.

When the secretary of the board of trustees is notified of the death of a member of the Fund a draft for \$500 will be placed in the hands of the widow or beneficiary within twenty-four hours.

We have taken up this proposition of group insurance with other organizations. The Orleans Parish Medical Society of New Orleans has insurance of \$13 per year per thousand. But that is in the hands of another company; it has not the mutual and to my mind the personal contact that this Widow's Fund would have. The American National of Galveston offers a proposition and gives a few rates. It costs about \$40 a year per thousand and they take up to 65.

In the last four years the proposition as outlined by Drs. James, Davis, Gilliland and myself would have amounted to \$4.87 per year for \$500 insurance. If we take in members above 55 in the beginning that assessment will be proportionately higher. The mortality rate will decrease as younger members come in, and for that reason we make the tentative age of 55.

We have gone into other propositions on insurance but in the opinion of the committee they did not measure up to the benefits that the plan now outlined would give. Group insurance is for any member of the Association who desires it and the Widow's Fund will not interfere with that.

The second thing which has come before the Special Committee was in regard to courtesies to members of the profession, and also those outside of the profession, usually shown in the form of floral offerings. It occurred to this committee that in the future it might be well to establish a fund, or endowment for some purpose, so that the sum spent on flowers could be put into this fund the interest of which would go to some worthy cause, and a card sent to the family of the deceased, or to the one whose birthday or some other anniversary is being celebrated, stating that an appropriate donation has been made to the Memorial Fund

of the Missouri State Medical Association. The activity chosen is the Hospital for Crippled Children at Columbia, the interest only to be used. We do not assume any obligations which belong to the state, but merely to add some niceties in the way of candy and flags and toys for the children—just a little more than institutional care. We feel that this fund will in time amount to something—and will be of benefit. Donations can be made to this Fund by any individual; it is not limited to members of this Association. I do not want to be a pessimist, but I know that within the next year there will be at least five calls on me for flowers, and I am willing to buy five cards at \$5.00 each, so that when one of my friends or acquaintances dies I will have one of these cards in the hands of his family. If we can get one hundred members of the Missouri State Medical Association to buy five dollars' worth, or whatever they may desire, we will have a fund for these crippled children.

Discussion by Drs. L. C. Chenoweth, Joplin; W. H. Breuer, St. James; S. L. Baysinger, Rolla.

Dr. R. M. James, Joplin, moved that the report of the Special Committee be accepted. Seconded and carried.

Dr. E. C. Funsch, St. Louis, moved that the vote by which the report of the Special Committee was accepted be reconsidered. Seconded and carried.

Dr. E. C. Funsch, St. Louis, moved that the report of the Special Committee on the Widow's Fund be taken up section by section. Seconded and carried.

President Cotton at this point announced the appointment of the Committee on Nominations as follows:

#### Committee on Nominations

Ralph W. Holbrook, Kansas City, Chairman.  
A. P. Erich Schulz, St. Charles.  
Frank G. Nifong, Columbia.  
C. H. Dixon, Moberly.  
J. H. Timberman, Chillicothe.  
C. T. Ryland, Lexington.  
E. C. Shelton, Eldon.  
E. C. Funsch, St. Louis.  
A. H. Marshall, Charleston.  
R. M. James, Joplin.

On motion, duly seconded and carried, the discussion on the Widow's Fund was postponed until the afternoon session.

On motion, adjourned.

#### Monday, May 12, 1930—Afternoon Session

The House of Delegates was called to order at 3:30 p. m., Monday, May 12, 1930, by the President, Dr. T. W. Cotton, Van Buren. The minutes of the previous meeting were read and approved.

The report of the special committee on the Widow's Fund was taken up section by section.

#### RULE 1

The name of this organization shall be "The Widow's Fund." Its object shall be to pay to the beneficiary of each deceased member of the Fund the sum hereinafter provided for, such payment to be made to the beneficiary in cash and as soon after the death of the member as possible.

On motion, duly seconded, Rule 1 was adopted.

#### RULE 2

Any member of the Missouri State Medical Association who is in good and regular standing in the organization, not more than 55 years of age and in good health, is eligible to membership in the Fund. On losing his membership in the Association for any reason his membership in the Fund shall cease and he shall forfeit all fees and assessments paid to the said Fund.

It was moved and seconded that Rule 2 be adopted.

Discussion by Dr. L. C. Chenoweth, Joplin.

Dr. P. D. Gum, West Plains, moved to amend

the motion by striking out the age limit. Seconded.

Discussion by Drs. A. H. Marshall, Charleston; O. S. Gilliland, Kansas City; R. M. James, Joplin; C. P. Dyer, St. Louis; W. H. Breuer, St. James; E. C. Funsch, St. Louis.

Dr. C. H. Dixon, Moberly, moved as a substitute to Dr. Gum's motion that Rule 2 be amended to read as follows:

#### RULE 2

Any member of the Missouri State Medical Association who is in good and regular standing shall be eligible to participate in this Fund for one year from the date of its establishment after which the age limit shall be 55 years.

The motion was seconded and carried.

#### RULE 3

Any person desiring to become a member of the Fund shall make application on the form hereinafter provided, designating the beneficiary in case of death, and mail the application to the secretary with remittance to cover the required fee.

On motion, duly seconded, Rule 3 was adopted.

#### RULE 4

The initial fee from each member of the Fund shall be \$2.20 and each assessment thereafter shall be \$1.10.

On motion, duly seconded, Rule 4 was adopted.

#### RULE 5

Upon the death of any member of the Fund his beneficiary shall receive in cash, as hereinbefore provided, the sum of \$1.10 for each and every member of the Fund in good and regular standing at the time of such death, until the membership reaches five hundred, after which and as long as the membership remains five hundred or more, the beneficiary shall receive the sum of \$500.

On motion, duly seconded, Rule 5 was adopted.

#### RULE 6

When the amount in the benefit fund becomes less than \$2.00 for each member in the Fund, the Secretary shall immediately levy a replacing assessment of \$1.10 on each and every member in good and regular standing. All assessments must be paid upon receipt of notice and any member failing to pay any assessment within thirty days after its levy shall be dropped from the roll of membership by the secretary, and neither he nor his beneficiary shall be entitled to any benefits from the Fund.

On motion, duly seconded, Rule 6 was adopted.

#### RULE 7

When any member has been dropped from the roll he can be reinstated only by filing a new application and paying the initial fee, as provided in Rule 4.

On motion, duly seconded, Rule 7 was adopted.

#### RULE 8

The Fund shall be governed by a Board of Trustees, three in number, who shall be elected annually by the members of the Fund. The Board of Trustees shall elect a president, who shall preside at its meetings, and at all meetings of the members of the Fund. The Board shall exercise a general supervision over the affairs of the Fund, pass upon all applications and approve all disbursements.

On motion, duly seconded, Rule 8 was adopted.



## RULE 9

A secretary shall be elected annually by the members of the Fund at the annual meeting. The secretary shall keep all books and records of the Fund, collect all assessments and issue all warrants for the payment of death benefits. He shall make a report to the Trustees and through them to the Missouri State Medical Association at least every six months, and oftener if required. For his services he shall receive twenty cents from each initial application and ten cents from each individual assessment out of which he shall pay all expenses incident to making and collecting such assessments.

It was moved and seconded that Rule 9 be adopted.

Dr. E. C. Funsch, St. Louis, moved to amend Rule 9 by requiring the secretary to furnish a bond of \$5,000, and for the books of the Fund to be audited annually by a reputable firm of certified public accountants, and the publication of that report in the State Association JOURNAL at least once a year. Seconded.

Dr. C. H. Dixon, Moberly, moved to amend the amendment by striking out the reference to the reputable firm of certified public accountants and substituting therefor "that the books of the Fund shall be audited by the regularly appointed auditing committee of the Missouri State Medical Association." Seconded.

On ballot, Dr. Dixon's amendment to the amendment carried.

The vote on the original motion as amended was put and carried.

Rule 9 therefore reads as follows:

## RULE 9

A secretary shall be elected annually by the members of the Fund at the annual meeting. The secretary shall keep all books and records of the Fund, collect all assessments and issue all warrants for payment of death benefits. He shall make a report to the Trustees and through them to the Missouri State Medical Association at least every six months, and oftener if required. For his services he shall receive twenty cents from each initial application and ten cents from each individual assessment out of which he shall pay all expenses incident to making and collecting such assessments. He shall furnish a bond in the sum of \$5,000 and shall have his books audited annually by the regularly appointed auditing committee of the Missouri State Medical Association.

## RULE 10

The funds of the Association shall be deposited in some bank or trust company to be designated by the members of the Fund at its regular or at a special meeting, or to be selected by the Trustees. The deposit shall be in the name of "The Widow's Fund." Payments from the Fund shall only be made on warrants issued and signed by the secretary and approved in writing by the president of the Board of Trustees.

Dr. Lee Dorsett, St. Louis, moved to amend the rule by requiring the funds to be deposited in a national bank or trust company. Seconded and carried.

On motion, the original motion as amended was adopted.

Rule 10, as amended, reads as follows:

## RULE 10

The funds of the Widow's Fund shall be deposited in some national bank or trust company

to be designated by the members of the Fund at its regular or at a special meeting, or to be selected by the Trustees. The deposit shall be in the name of "The Widow's Fund." Payments from the Fund shall only be made on warrants issued and signed by the secretary and approved in writing by the president of the Board of Trustees.

## RULE 11

The annual election of the Board of Trustees, the president and the secretary, shall be held during the Annual Meeting of the Missouri State Medical Association immediately following the second meeting of the House of Delegates and in the same room.

On motion, duly seconded, Rule 11 was adopted.

## RULE 12

These rules and regulations may be amended only at the annual meeting, or at a special meeting of the members of the Fund called for that purpose by the President of the Board of Trustees, of which meeting each and every member shall have written notice. The proposed change or addition must be submitted in writing and receive the sanction of at least two-thirds of the members present at that meeting.

On motion, duly seconded, Rule 12 was adopted.

Dr. C. H. Dixon, Moberly, moved that the report as a whole as amended be adopted. Seconded and carried.

Dr. A. R. McComas, Sturgeon, Chairman of the Council, read the report of the Council as follows:

## REPORT OF THE COUNCIL

The Executive Committee of the Council has held two meetings since the last Annual Session at Springfield and the Council held its regular midwinter meeting, the latter convening at Columbia, December 9, 1929.

## Executive Committee Meeting, June 19, 1929

The Executive Committee met at the Forest Park Hotel, St. Louis, June 19, 1929, with all the members present. President Cotton announced his appointments to standing committees which were approved by the Council. The President also appointed a special committee to cooperate with Governor Caulfield's Survey Commission investigating the status of eleemosynary, penal and educational institutions of the state. Members of this committee are Drs. Ross A. Woolsey, St. Louis, chairman; Jabez N. Jackson, Kansas City; and Dudley A. Robnett, Columbia. On motion of Dr. Gayler, the President and the Secretary were added as members of the committee. These appointments were approved by the Council.

## Executive Committee Meeting, August 26, 1929

The Executive Committee met at the home of President Cotton in Van Buren, August 26, 1929, with all the members of the committee present.

The Secretary reported that Dr. Ross A. Woolsey, St. Louis, chairman of the special committee to cooperate with Governor Caulfield's Survey Commission, was unable to be present but wished to report that he was making progress.

A discussion arose on the question of including three vice presidents as officers of the State Association which resulted in a motion instructing the Secretary to draw up an amendment to the Constitution and By-Laws to provide for these officers.

## Annual Meeting of the Council, December 9, 1929

The Annual Meeting of the Council was held in the Daniel Boone Tavern, Columbia, December 9, 1929. Twenty members were present. The chairmen of standing committees were also present.

The Secretary read the minutes of the meetings of the Executive Committee of June 19 and August 26, 1929, which were approved.

The Chairman appointed the following committee on Auditing and Appropriations: Drs. O. C. Gebhart, Oregon, Chairman; J. C. B. Davis, Willow Springs; and R. M. James, Joplin.

Drs. Howard B. Goodrich, Chairman, Hannibal; B. Kurt

Stumberg, St. Charles; and D. A. Barnhart, Huntsville, were elected members of the General Committee on Arrangements for the 1930 session at Hannibal.

A request having been received from the Marion County Medical Society that Dr. Howard B. Goodrich serve as chairman of the Local Committee on Arrangements, the Council on motion by Dr. C. T. Ryland, Lexington, duly seconded, elected Dr. Goodrich as chairman of the Local Committee on Arrangements.

Dr. E. J. Goodwin, St. Louis, Chairman of the Committee on Scientific Work, asked for authority to invite out-of-state guests to appear on the scientific program. On motion by Dr. C. T. Ryland, Lexington, duly seconded, this authority was granted.

The report of the Committee on Postgraduate Course was read by the Secretary in the absence of the chairman, Dr. Charles H. Neilson, St. Louis, who was unable to be present.

Dr. C. E. Hyndman, St. Louis, chairman of the Committee on Defense, reported one suit and three threats of suits since the last annual meeting.

Dr. D. A. Robnett, Columbia, reported for the special committee to cooperate with the Survey Commission, the chairman, Dr. Woolsey, being unable to attend this session. Dr. Robnett described his efforts to induce the Survey Commission, at its meeting in Jefferson City, to approve and recommend the erection of a state general hospital at Columbia and the restoration of the four-year course in medicine at the State University. This step was earnestly advocated by the expert investigators headed by Dr. George D. Strayer, of Columbia University, New York.

The Secretary read several proposals for amendments to the Constitution and By-Laws which he was instructed to submit to the standing committee on Constitution and By-Laws.

Dr. J. C. B. Davis, Willow Springs, chairman of the Committee on Publication, reported that THE JOURNAL was in prosperous condition, there being a net gain of \$1200 of income over expenses, and stated THE JOURNAL continued to enjoy the good-will of advertisers and the interest of members. He read a letter from a new advertiser which expressed admiration for the official organ of our Association. The advertising rates were to be increased about 20 per cent in January, 1930.

The Secretary reported that there was a possibility of Washington University School of Medicine discontinuing its department in THE JOURNAL under the head of Washington University Clinics, and asked the members to express an opinion upon the value of this department to the members of the Association. After this topic had been discussed by several members, Dr. Ralph L. Thompson, St. Louis, moved that it is the consensus of the Council that the material published under the Washington University Clinics is a very important feature of our JOURNAL and that the Council would appreciate the continuance of this department. The motion was duly seconded and carried.

Dr. W. H. Breuer, St. James, moved that the dates of the Annual Meeting in 1930 be fixed for May 12, 13, 14, 15. Seconded and carried.

The Secretary read a letter from Jackson County Medical Society informing the Council that a bill for \$1,132.50 had been received by the Jackson County Medical Society from Scarritt, Jones, Seddon and North for services in the suit filed in 1922 by McCleary Sanitarium, Kansas City, for \$250,000 damages. The suit has been dismissed.

Dr. Breuer moved that the State Association pay \$500 of this bill, with the statement that any county society having a similar suit brought against it should refer the matter immediately to the Executive Committee. Seconded by Dr. J. S. Gasbwyler, Novinger, and carried.

On motion the Secretary was instructed to lay this matter before the Secretary of the American Medical Association.

Dr. O. C. Gebbart, Oregon, reported for the Committee on Auditing and Appropriations for 1930, as follows:

#### Budget for 1930

Salaries .....	\$ 9,400.00
Printing JOURNAL .....	8,000.00
Legislation .....	1,000.00
Defense .....	500.00
Postage .....	500.00
Speakers' Bureau (including postgraduate extension course) .....	2,500.00
Printing and Stationery .....	600.00
Traveling Expenses of President.....	500.00
Traveling Expenses of Secretary.....	1,000.00
Telegrams and Telephone .....	1,000.00
Rent of Offices .....	1,380.00
Executive Committee Meetings and Council.....	800.00
Total .....	\$27,180.00

In accordance with the plan adopted at the Springfield session in 1929, the Council set aside the sum of \$5000 in a special fund to be known as the St. Louis Medical Society Executive Secretary's Salary Fund to be drawn upon monthly by voucher by the St. Louis Medical Society. On February 1, 1929, the Executive Committee received satisfactory guarantees from the St. Louis Medical Society that it would continue the employment of the Executive Secretary for a

period of two years after the initial year had expired, and that the Society had a sufficient sum to maintain the Executive Secretary for that additional period of two years. The Society also informed the Executive Committee that a contract had been signed by the Society and by Mr. Elmer H. Bartelsmeyer as the Executive Secretary beginning February 1, 1930.

The Council recommends:

1. That the House of Delegates urge more county societies to take advantage of the Postgraduate Committee work.

2. That the part of the President's address referring to sanitation be referred to the Committee on Public Policy with the request that every facility be used to spread to the general public.

3. That the President's suggestion for better facilities in laboratory diagnosis by the board of health be referred to the Committee on Public Policy.

4. That in view of the President's remarks on dues the Council recommends that the dues be not reduced.

5. That we call upon the Curators of the State University to reestablish the four-year medical course at Columbia and pledge our support in an earnest effort to do so.

The reports of the Councilors indicate that affairs of the Association are progressing satisfactorily.

The Council recommends the payment of \$500 to Marion County Medical Society on account of suit brought by osteopaths against Levering Hospital for excluding them. The suit was won by Levering Hospital.

The Council also recommends the payment of \$500 to Jackson County Medical Society account of a suit by McCleary Sanitarium for \$250,000 damages. The case has been dismissed. The attorney's fee is \$1132.50. The American Medical Association declined to aid in payment of this fee.

A. R. McCOMAS, Chairman.

Dr. Jabez N. Jackson, Kansas City, moved that the report of the Council be adopted. Seconded and carried.

Dr. A. R. McComas, Surgeon, moved that the House of Delegates approve for payment the sum of \$500 each to the Levering Hospital and the Jackson County Medical Society as recommended by the Council. Seconded and carried.

Dr. C. D. Humberd, Barnard, reported for the Reference Committee on Miscellaneous Affairs, as follows:

#### REPORT OF THE REFERENCE COMMITTEE ON MISCELLANEOUS AFFAIRS

The Committee recommends:

1. That the report of the Committee on Public Policy be accepted with the Association's disapproval of the ruling of the Attorney-General allowing osteopaths to use narcotics.

2. That the report of the Committee on Defense be accepted and that in view of our appreciation of the excellent work which this committee has accomplished, the Association extend them a standing vote of thanks. We further recommend that the benefit which the Committee on Defense can extend to the member who is sued for malpractice be increased to \$200 when in the judgment of the committee such extension is necessary.

3. That the attention of the Association be called to the fact that in malpractice and damage suits there is far too often a competing physician aiding and abetting a dissatisfied patient, and that this Association should disapprove very heartily of this too frequent occurrence among our members.

4. That the report of the Committee on Medical Economics be received and filed with our commendation of the style in which Dr. Love presented his viewpoint.

G. WILSE ROBINSON, Chairman.

C. D. HUMBERD,

T. J. DOWNING.

Dr. A. R. McComas, Surgeon, moved that the report be adopted. Seconded by Dr. J. B. Wright, Trenton, and carried.

Dr. A. R. McComas, Surgeon, chairman, read the report of the Reference Committee on Amendments to the Constitution and By-Laws, as follows:

#### REPORT OF THE REFERENCE COMMITTEE ON AMENDMENTS TO THE CONSTITUTION AND BY-LAWS

Amend Article IX, Section 1, of the Constitution to read:

Sec. 1. The officers of this Association shall be a President, a President-Elect, three Vice Presidents, a Secretary, a Treasurer, and twenty-nine Councilors, more or less, as



shall be determined by the House of Delegates from time to time.

Received and laid on the table for one year.

The Reference Committee on Miscellaneous Affairs, just reporting, recommended that the benefit which the Committee on Defense can extend be increased to \$200. After some discussion in the Council it was recommended that this sum be raised to not exceed \$300. This is offered as an amendment to the By-Laws.

Received and laid on the table until the Wednesday meeting.

Amend Chapter XII, Section 1, of the By-Laws to read:

Sec. 1. These By-Laws may be amended at any Annual Session by a two-thirds vote of the delegates present and voting, if the proposed amendment has been properly submitted to the House of Delegates and has lain on the table for one day.

Received and laid on the table until the Wednesday meeting.

Amend Chapter V, Section 2, of the By-Laws to read:

Sec. 2. The President-Elect shall be a member of the Council and of the Executive Committee of the Council ex officio, and shall attend all meetings of these bodies. Should the office of President-Elect become vacant through death or otherwise the Council may fill the vacancy until the next annual meeting of the Association.

Received and laid over until the Wednesday meeting.

Amend Chapter V by adding a new section to be known as Section 2a, as follows:

Sec. 2a. The Vice Presidents shall assist the President in the discharge of his duties. In the event of the death, resignation or removal of the President, the Council shall select one of the Vice Presidents to succeed him.

Received and laid over for one year.

Amend Chapter VI, Section 7, by deleting the word "December" in the fourteenth line and substituting the word "November."

Received and laid over until the Wednesday meeting.

We, the Reference Committee on Amendments to the Constitution and By-Laws, move the adoption of this report.

A. R. McCOMAS, Chairman.

Seconded and carried.

Dr. O. S. Gilliland, Kansas City, Councilor of the 13th District, read the following resolution adopted by the Executive Council of the Jackson County Medical Society on April 22, which on motion, duly seconded, was referred to the Committee on Public Policy.

#### Resolution on Workmen's Compensation Act

WHEREAS, The Missouri Workmen's Compensation Law apparently limits the liability to employers and insurance companies to \$250 for all ambulance, hospital, nursing, medical and surgical attendance in the first sixty days after an accident, but after sixty days the commission may approve and order paid all reasonable bills for necessary hospital, medical and surgical attention during subsequent months, and

WHEREAS, Certain insurance companies writing liability insurance in Missouri are availing themselves of this provision to deny to severely injured men hospital and medical attention which they desperately need or if such attention is given by hospitals and doctors to deprive them of the customary and just fees, and

WHEREAS, It is against the best interests of the injured employee and the employer to limit hospital and medical service at the time they are most needed to save life or effect a cure or the greatest possible degree of restoration of function, while allowing bills to be incurred freely after sixty days, therefore be it

Resolved, That the Jackson County Medical Society commends those insurance companies who are voluntarily furnishing necessary attention to injured men above the requirements of the law and that the Society condemns those

companies who are availing themselves of the letter of the law to evade their moral obligations, and be it further

Resolved, That this Society instruct its delegates to urge the adoption of similar resolutions by the Missouri State Medical Association and the American Medical Association and that it urge the amendment of this law by the next session of the legislature of Missouri, such amendment to allow the Missouri Workmen's Compensation Commission to approve all just and reasonable bills for necessary hospital, nursing and medical and surgical care for injured employees from the date of the accident as is provided in the laws of New York, Massachusetts and other states.

The Secretary, Dr. E. J. Goodwin, St. Louis, informed the House that Senator Alroy Phillips, of St. Louis, had phoned to him on the eve of his departure for Hannibal that the St. Louis Court of Appeals had handed down a decision on May 6 stating that an injured employee cannot recover anything for medical aid after the first sixty days have expired unless the employee had before the expiration of the sixty days obtained an order from the Workmen's Compensation Commission for such additional aid.

The Secretary requested that this information be referred to the Committee on Public Policy. It was so ordered.

Discussion by Dr. E. C. Funsch, St. Louis, and Mr. Elmer E. Bartelsmeyer, Executive Secretary of the St. Louis Medical Society.

Dr. Frank G. Nifong, Columbia, presented a matter to the House of Delegates which he declared would interest every member of the Missouri State Medical Association and which he asked the House of Delegates to sponsor. In presenting the matter, Dr. Nifong said:

We all feel and know that medicine has made many advances and has now become a real science instead of an empiric art. Also that medical education does not stop with the priesthood of medicine but is meant to be disseminated to the whole population. An old prophet in Israel some years ago had a vision; he did not dream any foolish dream; he was always practical. He saw far ahead. He was the keystone for many years of this organization and helped to support it. He organized medicine in various ways as well as taught medicine in a most practical way. He was dean of the medical department of the University of Missouri, the organizer of the health department of Missouri. He had a vision of teaching medicine to the laity of Missouri, things they should know with benefit to themselves. Unfortunately, he could not stay with us to guide us.

When we have such men as this it is only proper that we should memorialize them. The Association of Medical Students of the University of Missouri, many of them not graduates, were always interested in this old dean and hearing what he had to say, so they cast about for a fitting memorial to him that would be suitable to perpetuate his teachings. That was a rather difficult thing. The ordinary academic mind would say, let us make a research fund, or a students' loan fund, or build a library and name it for him. As you probably know, I am speaking of Dr. Andrew Walker McAlester. This Association of Students of Missouri University selected a subcommittee to formulate some plan by which the name of Dr. Andrew Walker McAlester might be glorified, and at the same time serve humanity. He was a great servant and teacher, a great public health man. He did more perhaps than any other individual to accomplish its purposes. So after due deliberation and a number of conferences we finally have drafted a report on a suitable memorial to Dr. McAlester, and as it involves action on the part of the Missouri State Medical Association it is necessary to read this report and secure your approval of it if possible. This is the report as drafted:

#### Articles of Agreement for the Andrew Walker McAlester Memorial Foundation

##### THE NAME

The name of this endowment shall be The Andrew Walker McAlester Memorial Foundation.

##### THE OBJECTS OF THE FOUNDATION

The Andrew Walker McAlester Memorial Foundation shall be for the purpose of promoting popular medical education.

The funds and bequests acquired under these articles of agreement shall be used for a perpetual or permanent Foundation, unless otherwise disposed by individual donors. The income derived therefrom shall be used to further the purposes of the Foundation.

#### THE CUSTODY OF THE FUNDS OF THE FOUNDATION

The funds acquired in support of this Foundation shall be transferred to the custody of the Board of Curators of the University of Missouri, to be invested and reinvested by them as a permanent fund.

The Board of Curators shall make appropriations from the annual income of the Memorial Fund for the purpose of this endowment in accordance with the recommendations of the Administrative Committee hereinafter provided, and shall expend the same on vouchers signed and approved by said committee.

#### THE ADMINISTRATIVE COMMITTEE

There shall be an Administrative Committee of the Foundation consisting of seven members as follows: One member to be chosen by the faculty of the school of medicine of the University of Missouri; one member to be chosen by the University of Missouri Medical School Association; one member to be chosen by the faculty of the veterinary department of the University of Missouri; two members to be chosen by the Missouri State Medical Association, and two nonmedical members to be chosen from contributors to the Memorial Foundation. The committee shall at its first meeting elect a chairman whose term of office shall be three years. The committee shall then determine by lot two who shall serve one, two and three years, respectively, but their successors shall be elected for terms of three years. The first nonmedical members from contributors are to be chosen by the other five members of the committee until the time may come when the contributing members may be chosen by organized contributors.

#### POWERS OF ADMINISTRATIVE COMMITTEE

The Administrative Committee shall consider and decide all propositions for the advancement of the objects of this Memorial, perfect plans for their execution, and certify expense vouchers in support of the same to the Board of Curators of the University of Missouri as custodians of the Memorial Fund.

The Administrative Committee, acting in cooperation with the school of medicine and other departments of the University, as well as with other agencies having similar purposes to this Foundation, shall make immediate plans for promoting popular medical education in the State of Missouri. By popular medical education is meant the dissemination of health information and the teaching of preventive medicine to the general public by popular lectures, bulletins, extension work and other methods which may promote the health and general welfare of the people of Missouri.

The committee shall have power to promote such other activities as may from time to time be found to best advance the main objects of this Memorial.

The Administrative Committee shall make by-laws and rules for its own procedures, and shall have powers customary to such committees.

Dr. C. D. Humbert, Barnard, moved that the proposal to establish the Andrew Walker McAlester Memorial Fund be approved and that the President be empowered to appoint two members of our Association to be members of the Administrative Committee of the Foundation. Seconded and carried.

Dr. C. D. Humbert, Barnard, moved that the House of Delegates telegraph a message conveying our regards to the officers of the Kansas Medical Society and express our appreciation of their efforts to quash the quackery being broadcast from the radio station at Milford, Kansas, and that the House also extend the thanks of the Association to the Kansas City *Star* for its recent splendid publicity in bringing the true status of this quackery to the attention of the public. Seconded and carried.

The President appointed the following members to represent the Association on the Administrative Committee of the Andrew Walker McAlester Memorial Foundation: Dr. Arthur R. McComas, Sturgeon, and Dr. Frank G. Nifong, Columbia.

The Secretary read a resolution from the George Washington Bicentennial requesting our cooperation in the plans to celebrate the George Washington Bicentennial in 1932. On motion, duly seconded, the resolution was adopted.

Dr. L. C. Chenoweth, Joplin, nominated Joplin as the place for holding the 1931 meeting of

the Association, and presented the invitation of the Jasper County Medical Society and a letter from the Connor Hotel giving rates for rooms in great detail. The nomination was seconded by several.

Dr. E. A. Gummig, St. Joseph, nominated St. Joseph as the next place of meeting and presented the invitation from Buchanan County Medical Society and a telegram from the Chamber of Commerce of St. Joseph.

Dr. R. W. Holbrook, Kansas City, nominated Kansas City, for the next meeting place, stating that in 1931 the Jackson County Medical Society will celebrate its fiftieth anniversary and asked the State Medical Association to lend its influences to make the occasion a memorable one.

The vote resulted in no city receiving a majority, Joplin having 25 votes, St. Joseph 19, and Kansas City 7. According to the rule, the city receiving the least number of votes was dropped. On the next ballot, Joplin received 27 votes, St. Joseph 22, and Joplin was declared the choice for the next place of meeting.

Dr. E. A. Gummig, St. Joseph, moved that the vote for Joplin be made unanimous.

On motion adjourned.

#### Wednesday, May 14, 1930—Afternoon Session

The House of Delegates convened at 3:30 p. m. Wednesday afternoon, May 14, 1930, with the President, Dr. T. W. Cotton, Van Buren, in the chair. The minutes of the previous meetings were read and adopted.

Dr. Ralph W. Holbrook, Kansas City, chairman of the Committee on Nominations, read the report of his committee as follows:

#### REPORT OF THE COMMITTEE ON NOMINATIONS

For delegates to the American Medical Association: Delegate, Jabez N. Jackson, Kansas City; alternate, G. Wilse Robinson, Kansas City. Delegate, A. R. McComas, Sturgeon; alternate, H. L. Kerr, Crane. Delegate, S. L. Bay-singer, Rolla; alternate, A. H. Marshall, Charleston.

#### For Councilors:

- 1st District, O. C. Gebhart, Oregon.
- 3rd District, J. A. Crockett, Stanberry.
- 5th District, J. R. Bridges, Kahoka.
- 7th District, H. B. Goodrich, Hannibal.
- 9th District, A. R. McComas, Sturgeon.
- 11th District, J. H. Timberman, Chillicothe.
- 13th District, O. S. Gilliland, Kansas City.
- 15th District, L. J. Schofield, Warrensburg.
- 17th District, Guy Titsworth, Sedalia.
- 19th District, J. S. Summers, Jefferson City.
- 21st District, T. F. Estel, Altenburg.
- 23rd District, J. B. Luten, Caruthersville.
- 25th District, W. W. Johnston, Farmington.
- 27th District, J. C. B. Davis, Willow Springs.
- 29th District, R. M. James, Joplin.

Dr. Lee Dorsett, St. Louis, moved that the report be adopted. Seconded and carried.

Dr. W. H. Breuer, St. James, moved that the officers and delegates nominated in the report of the Committee on Nominations be declared duly elected. Seconded and carried.

President Cotton called for nominations for President-Elect for the succeeding year.

#### Nomination of President-Elect

Dr. W. Logan Allee, Eldon, nominated Dr. John Frank Harrison, Mexico. The nomination was seconded by Dr. R. W. Berrey, Mexico.

Dr. A. W. McAlester, Kansas City, moved that the nomination be closed and that the Secretary cast the ballot of the House for the election of Dr. Harrison as President-Elect. Seconded and carried.



The Secretary cast the ballot of the House and Dr. John Frank Harrison was declared elected President-Elect.

The President appointed Dr. W. Logan Allee, Eldon, and Dr. S. L. Baysinger, Rolla, to find Dr. John Frank Harrison, our newly elected President-Elect, and escort him to the chair.

The President appointed Dr. Frank G. Nifong, Columbia, and Dr. A. H. Marshall, Charleston, to escort Dr. W. C. Gayler, St. Louis, to the chair to be installed as President.

### Installation of President Gayler

**PRESIDENT COTTON:** Dr. Gayler, the responsibility for the activities of the Missouri State Medical Association for the year 1930-1931 now rests upon your shoulders. I know you will occupy the position with honor to the medical profession of the state. It gives me much happiness to turn over the gavel to you.

### Remarks of President Gayler

**DR. W. C. GAYLER, St. Louis:** I am overwhelmed by this tremendous honor. I will do everything in my power to make a creditable showing and to be a good presiding officer. At present, as the time is short, we will proceed with the program.

Dr. W. Logan Allee, Eldon, and Dr. S. L. Baysinger, Rolla, escorted the newly elected President-Elect, Dr. John Frank Harrison, Mexico, to the rostrum.

**PRESIDENT COTTON:** Gentlemen of the Association, behold your President-Elect! Dr. Harrison, behold the gentlemen of your Association!

### Remarks of President-Elect Harrison

**DR. JOHN FRANK HARRISON, Mexico:** Mr. President and Members of the Missouri State Medical Association, I wish I had the power and ability to adequately express my appreciation of this honor. It might be a good time to disillusion any person who may have voted for me thinking I could make a speech. I cannot. I have been a member of the Association for a great many years, I would rather not say how long as I am still a hachelor. My one ambition will be to serve this Association when it comes my time, and do it as well and faithfully as the men who have preceded me in this work, and as I know Dr. Gayler will do. I am a firm believer in medicine; I believe in organized medicine; I believe in the Missouri State Medical Association, and I have no other motive than to serve the Association and reflect whatever credit I may to myself in that way. I thank you very much.

President Gayler submitted his nominations for members of standing committees whose terms had expired, in each instance renominating the incumbent to succeed himself for a period of three years. The nominations follow:

E. J. Goodwin, St. Louis, Chairman, Committee on Scientific Work.

C. H. Neilson, St. Louis, Chairman, Committee on Post-graduate Course.

J. C. B. Davis, Willow Springs, Chairman, Committee on Publication.

W. Logan Allee, Eldon, Chairman, Committee on Public Policy.

Charles E. Hyndman, St. Louis, Chairman, Committee on Defense.

R. A. Woolsey, St. Louis, Chairman, Committee on Medical Education and Hospitals.

M. P. Overholser, Harrisonville, Chairman, Committee on Revision of Constitution and By-Laws.

Joseph W. Love, Springfield, Chairman, Committee on Medical Economics.

Dr. W. H. Breuer, St. James, moved that the nominations announced by the President be confirmed by the House of Delegates. Seconded and carried.

Dr. T. W. Cotton, Van Buren, resumed the chair.

The Secretary read the amendments to the By-Laws introduced at the session on Monday, May 12, which were now ready to be voted on as follows:

### Amendments to the By-Laws

Amend Chapter V, Section 2, of the By-Laws to read as follows:

Sec. 2. The President-Elect shall be a member of the Council and of the Executive Committee of the Council ex officio and shall attend all meetings of these bodies. Should the office of President-Elect become vacant through death or otherwise the Council may fill the vacancy until the next annual meeting of the Association.

Dr. W. H. Breuer, St. James, moved that this amendment be adopted. Seconded and carried.

Amend Chapter VI, Section 7, by deleting the word "December" in the fourteenth line and substituting therefor the word "November."

Dr. W. H. Breuer, St. James, moved that this amendment be adopted. Seconded and carried.

Amend Chapter VII, Section 5, Paragraph (c), fourteenth line, as follows:

Delete the figures \$100 and substitute therefor the figures \$300.

Dr. W. H. Breuer, St. James, moved that this amendment be adopted. Seconded and carried.

Amend Chapter XII, Section 1, of the By-Laws, to read as follows:

Sec. 1. These By-Laws may be amended at any Annual Session by a two-thirds vote of the delegates present and voting if the proposed amendment has been properly submitted to the House of Delegates and has lain on the table for one day.

Dr. W. H. Breuer, St. James, moved that this amendment be adopted. Seconded and carried.

The Secretary informed the House of Delegates that telegrams had been sent to the editor of the Kansas City *Star*, to the Kansas State Board of Medical Registration, and to the Kansas Medical Society commending them for the exposure of the radio quackery at Milford, Kansas; also to Senators Hawes and Patterson and to the Radio Commission protesting against extending the license of radio station KFKB.

### Doctor Fishbein Commended

Dr. L. C. Chenoweth, Joplin, moved that the following telegram be sent to Dr. Morris Fishbein, Chicago, Editor, of *The Journal of the American Medical Association*. Seconded and carried.

*Resolved*, That the Missouri State Medical Association, at its 73rd Annual Meeting in Hannibal, unanimously commends Dr. Morris Fishbein for his unrelenting activity and efforts to protect the public from quackery.

E. J. GOODWIN, Secretary.

Dr. P. D. Gum, West Plains, moved that the thanks of the Association be extended to the Local Committee on Arrangements and to the people of Hannibal in general for the splendid manner in which they have entertained us. Seconded and carried.

On motion, the House of Delegates adjourned *sine die*.

### MINUTES OF THE COUNCIL

#### Elks' Club

#### Monday, May 12, 1930—Afternoon Session

The first meeting of the Council at the Seventy-Third Annual Meeting of the Missouri State Medical Association held in the Elks' Club, Hannibal, Monday, May 12, 1930, was called to order by the Chairman, Dr. A. R. McComas, Sturgeon, at 1:00 p. m. The Secretary called the roll and seventeen members responded as follows:

2nd District, Daniel Morton, St. Joseph.

4th District, Geo. M. Bristow, Princeton.

- 5th District, J. R. Bridges, Kahoka.
- 7th District, H. B. Goodrich, Hannibal.
- 8th District, B. K. Stumberg, St. Charles.
- 9th District, A. R. McComas, Sturgeon.
- 10th District, D. A. Barnhart, Huntsville.
- 13th District, O. S. Gilliland, Kansas City.
- 15th District, L. J. Schofield, Warrensburg.
- 16th District, J. T. Hornback, Nevada.
- 17th District, Guy Titsworth, Sedalia.
- 18th District, W. Logan Allee, Eldon.
- 20th District, Ralph L. Thompson, St. Louis.
- 26th District, W. H. Breuer, St. James.
- 27th District, J. C. B. Davis, Willow Springs.
- 28th District, W. M. West, Monett.
- 29th District, R. M. James, Joplin.

Dr. W. H. Breuer, St. James, moved that the reading of the minutes of the previous meeting be dispensed with and adopted as printed in THE JOURNAL. Seconded and carried.

The Chairman, Dr. A. R. McComas, Sturgeon, read the report of the Executive Committee.

Dr. B. Kurt Stumberg, St. Charles, moved that the report of the Executive Committee be adopted and be made the report of the Council to the House of Delegates. Seconded and carried.

The Secretary read the recommendations in the President's address referred to the Council by the House of Delegates.

The first recommendation was in regard to increasing the activities of the Postgraduate Course.

Dr. W. H. Breuer, St. James, moved that this recommendation be approved and that the Council urge the county medical societies to take more frequent advantage of the Postgraduate Committee's services. Seconded and carried.

The second recommendation in the President's message dealt with the protection of the public health and particularly advocating that the people be informed by all legitimate means of publicity on the need of sanitation, hygiene, the control of epidemics, and especially emphasize the dangers of the open above-ground privy prevalent in small towns and rural communities.

Dr. Daniel Morton, St. Joseph, moved that this portion of the President's address be referred to the Committee on Public Policy with the request that the Committee use every publicity agent possible to spread the information before the public. Seconded and carried.

The third recommendation advocated an extension of the bacteriological laboratory service of the State Board of Health to physicians, especially physicians in small rural communities.

Dr. Ralph L. Thompson, St. Louis, moved that this question be referred to the Committee on Public Policy. Seconded and carried.

The question of establishing a board of medical examiners to examine applicants for license to practice medicine and separating this duty from the State Board of Health as mentioned in the President's recommendations was discussed.

Dr. B. Kurt Stumberg, St. Charles, moved that this part of the President's address be received and filed without recommendation.

The question of reducing the amount of the annual dues was discussed in the President's message.

Dr. D. A. Barnhart, Huntsville, moved that the Council approve the President's message in regard to the amount of dues and recommend that the dues not be reduced. Seconded and carried.

Dr. W. H. Breuer, St. James, moved that the recommendations of the President for the re-establishment of the four-year course in medicine at the State University be approved and that the Council recommended to the House of Delegates the earnest cooperation of our Association with the board of curators in an effort to provide the full course in medicine. Seconded and carried.

Dr. W. H. Breuer, St. James, offered an amendment to the By-Laws whereby the Defense Committee would be authorized to extend financial assistance to members sued for malpractice to an amount not to exceed \$300 instead of \$100 as now provided. The amendment reads:

Amend Chapter VII, Section 5, paragraph c, line 14, by deleting the figures \$100 and inserting in their stead the figures \$300, so that the line shall read, "but in no case shall the cost to this Association be in excess of \$300 for all such services."

On motion, it was ordered that this be made a part of the Council's report to the House of Delegates.

The report of the Committee on Postgraduate Course referred by the House of Delegates was read by the Secretary.

Dr. W. H. Breuer, St. James, moved that the Council indorse the report of the Postgraduate Committee and recommend to the House of Delegates the earnest cooperation of the Association to encourage the extension of the service offered by the Postgraduate Committee to the county medical societies. Seconded and carried.

The report of the Publication Committee referred by the House of Delegates was taken up.

Dr. B. Kurt Stumberg, St. Charles, moved that the report be adopted and the committee be commended for the splendid work they have done. Seconded and carried.

The report of the Treasurer referred to the Council by the House of Delegates was on motion of Dr. Daniel Morton, St. Joseph, duly seconded, referred to the auditing committee.

Dr. W. H. Breuer, St. James, moved that the Treasurer request our depository at Salisbury to execute an indemnity bond in our favor to the amount of \$25,000 for the protection of our deposits and that the Association pay the premium on this bond. This motion was seconded by Dr. J. R. Bridges, Kahoka.

After discussion, Dr. Ralph L. Thompson, St. Louis, offered a substitute motion that the question of an indemnity bond by our depository be referred to the Executive Committee for investigation and report at the next meeting. This motion was seconded.

Dr. Daniel Morton, St. Joseph, moved to amend the motion by adding the words "with power to act" in place of "and report at the next meeting." The amendment was seconded and carried, and the motion as amended carried.

The report of the Secretary referred to the Council by the House of Delegates was discussed.

Dr. W. H. Breuer, St. James, moved that the report of the Secretary be adopted and that the Secretary be commended for his efforts in keeping the membership up to standard and even this year a little higher than previous years. Seconded and carried.

Dr. A. R. McComas, Sturgeon, Chairman, appointed the following auditing committee:



### Auditing Committee

D. A. Barnhart, Huntsville, Chairman.  
B. Kurt Stumberg, St. Charles.  
J. C. B. Davis, Willow Springs.

### REPORT OF COUNCILORS

DR. DANIEL MORTON, St. Joseph: We have a peculiar situation. Andrew County adjoins Buchanan and we have been trying to get the men to organize a society there, but have not succeeded. They are lost sheep, and I think perhaps there are many lost sheep in Missouri medicine. I asked the Secretary if he knew how many doctors there are in Missouri legally authorized to practice medicine, and of the 6300 there are only about 3300 in this Association. There is something wrong with this Association; we ought to have more members. Where the trouble is I do not know, but I am inclined to think one thing is lack of publicity on the part of the State Association. Since we have divided the legislative side from the scientific side, the men who come for the scientific side do not know anything about the business side. That is the chief trouble about the dues—they do not know what we do with the money they contribute. We need not expect them to read the financial statement in the State Journal, but I do believe there is one thing through which a great deal of good could be done. We have talked about coming in contact with members of the Association. One thing we could do would be to start a propaganda among those who are not members. If our Secretary would go the rounds of the county societies and be brought into personal contact with those who are not members, I believe it would go a long way toward getting them in. If the incoming President would lay aside the practice of medicine for a year, with his persuasive qualities we would probably have a thousand new members, and those who are already members would be greatly strengthened. The Association is not in personal touch with the membership. I am speaking of the business side, not the scientific side. The men here today are concerned with the business side. I wish it might be possible in the coming year for the Secretary and President to make these personal contacts. I am going to ask the President to come to our section, and I will take him around to these stray sheep, and I believe if we can get him there we will be able to organize a society in Andrew County.

DR. E. J. GOODWIN, St. Louis, Secretary: Although there are 6300 listed in the Directory of the American Medical Association, you must remember that includes all the men who have been licensed to practice medicine including those in practice before license was required and all the renegades and advertising licensed doctors and the ilk that cannot be admitted to organized medicine. I do not believe there are 800 acceptable physicians listed in that Directory who could be elected to membership in the Association, and most of them are in the larger cities. St. Louis has 1900 listed and they have about 1100 members; most of the new members come from the recent graduates. Kansas City has 500 members, and 1100 in the Directory. Out of that 600 I doubt if they could get 200 they would be willing to accept.

Another point is that a lot of the doctors who have been members for years are growing old. By your action a couple of years ago you recommended that they be placed on the Honor Roll without paying dues. You would be surprised to know how that helps these men to stay in. They would drop out otherwise and be of no use to us at all. I do not believe we are in such bad shape as the figures on their face show. Nevertheless, I do feel we ought to follow Dr. Morton's advice and see what we can do to get new members.

DR. W. C. GAYLER, St. Louis: In St. Louis we have a careful and accurate card index system and every man who is not a member has been listed. While we have four or five hundred who are not members, that includes not more than one hundred who could be members even if they desired to do so. Dr. Morton suggested that Dr. Goodwin and I travel over the state, but while I am willing to do anything I can to get new members, I have a large and growing family and I have to make a living. I think the situation throughout the state is as it is in St. Louis—that there are not so many men outside the organization who are eligible for membership. We have with us the chairman of the membership committee in St. Louis, Dr. Lund.

DR. H. G. LUND, St. Louis: In the last year we put on a campaign in St. Louis to try to get every man to join the Society. It is true that over 50 per cent of the men we scrutinized have not the proper qualifications and we would not accept them. I am sure you will find there are very few men who have been out for any length of time who are worth while to have in the organization that we do not already have. We get them in while they are young. I am sure we have the cream, as it is.

DR. G. M. BRISTOW, Princeton: It has been suggested since I came into the room, listening to the difficulties the Councilors who have preceded me have had in securing a larger membership, that we had better change doctors. I am considerably discouraged. I believe if we had some means whereby the State Association could finance the members

in the counties—pay their dues—we would get a pretty good membership. One of my counties is practically gone from the State Association. A few weeks ago not a member had paid his dues. Three men promised me they would send in their dues, but I do not know whether they have done so. In another county we have seven or eight members out of eighteen doctors in the county. The other county fought for a reduction of dues but this one did not complain so much. In my own county we have a small membership. However, all but one are members of the State Association. In the county just below me where Dr. Wright has labored so successfully there is an active society. But throughout the District we have been unable to get a respectable number of doctors to pay their dues and become active in the work.

DR. J. R. BRIDGES, Kahoka: I think we have only one doctor in the three counties who is not a member of this Association. So we feel we have nothing much to complain about.

DR. H. B. GOODRICH, Hannibal: Ralls County is small and not very active; Shelby County the same; Marion County is more active. The main occurrence during the year has been the outcome of the suit which the osteopaths brought against Levering Hospital. That suit has been decided in favor of the hospital board. I have here a bill which the attorneys presented to the Board of Control of the hospital for legal services, and I present it for your consideration. The doctors of Marion County would be very much pleased if the Council and delegates could see fit to take the financial burden from us and take care of this bill.

We people of Marion County are pleased to have you here today and the next three days.

DR. B. KURT STUMBERG, St. Charles: I wish to report that the St. Louis County Medical Society, as well as Pike County and St. Charles, are in good shape. We have been unable to organize Lincoln County but hope to do so.

DR. A. R. MCCOMAS, Sturgeon: In my district we have three counties that are very active—Audrain, Howard and Boone. In Warren County, one railroad runs along the northern side and another along the southern and the difficulty is to find a central meeting place.

DR. D. A. BARNHART, Huntsville: I represent Macon, Randolph and Monroe. Randolph and Monroe are active. I do not think there are more than twelve acceptable members that do not belong. Macon County is not active.

DR. O. S. GILLILAND, Kansas City: In Kansas City we feel we have a very successful society. The programs are interesting and the attendance good. We have over 500 members and frequently we have an attendance of 125. More than 500 members to date have paid their dues so we feel that everything is going fine. There has been considerable work done against quacks and quackery, led by Dr. Holbrook. At the last meeting in December this Association voted us \$500 to pay part of the expense of litigation.

DR. J. T. HORNBACK, Nevada: Part of our counties are organized and some are not. About a year ago I was elected in Dr. Craig's place; I suggested to our secretary to take up the district organizations and have a meeting in the different counties.

DR. GUY TITSWORTH, Sedalia: My three counties are well organized. Practically every man who is eligible is a member of the organization. In my county there are five not members.

DR. W. L. ALLEE, Eldon: My counties are well organized and conditions are unchanged.

DR. RALPH L. THOMPSON, St. Louis: Speaking for the St. Louis Medical Society, I can now report that owing to the generosity of the State Association we have appointed an executive secretary and the Society feels that we have gotten the right man for this job. Of course he has only been with us for a short time and it is too early to report results, but already he is familiarizing himself with legislation, federal, state and local; he is maintaining contacts all along the line with health authorities, state and local, with city organizations, as the Better Business Bureau of St. Louis, and the Society has taken a membership in the Chamber of Commerce. Better relations with the press have been established and he has excellent opportunity to make contacts that may be of further use to the organization, such as the Safety Council. He is also at the disposal of special committees to make surveys. The possibilities of such a man you can well recognize. Many cities now have paid executive secretaries. Our secretary is very modest and while I hope you have a chance to meet him he does not wish to address you. Next year we hope you will have an opportunity to listen to him.

DR. W. H. BREUER, St. James: I represent Crawford, Phelps, Pulaski, Laclede and Dent. Crawford has a membership of six out of seven in the county; Dent has five who belong; Phelps has thirteen with ten active members. Laclede has twelve and twelve members. We are holding councilor district meetings for scientific work. The Post-graduate Committee has been furnishing us speakers all of whom have been very satisfactory.

DR. J. C. B. DAVIS, Willow Springs: I represent Douglas, Howell, Oregon, Texas, Wright and Ozark. Ozark is hopeless so far as organization is concerned, although we do occasionally get some of the doctors to come. There are prob-

ably not to exceed three or four in Ozark County. We have had district meetings in which the Postgraduate Committee has sent us good men. We enjoy them very much. As a rule all these counties are functioning except Ozark. In Texas County we have a few members who think they get nothing in return for their money, but they are the only ones I know of. I am sure in the five counties there is no complaint about the dues. They are perfectly satisfied and are glad they belong.

DR. W. M. WEST, Monett: I represent Greene, Lawrence, Barry, Stone, Christian, Webster, Polk, Taney and Dallas,—a lot of territory but not many active doctors. The meetings we have had were very satisfactory. I do not think we have had any lawsuits nor any complaints about dues. I do not think we would increase the membership any if we did reduce the dues. I think the general situation in our district is very satisfactory.

DR. R. M. JAMES, Joplin: I represent Newton, Jasper and McDonald. McDonald has three doctors, but I never has been organized. Newton has seventeen doctors, fourteen members. Jasper is more active but it has more trouble in keeping them out than getting them in. Recently we completed a hospital at Carthage and when some of these doctors found out they could not be on the staff unless they belonged to the medical society they used every means to get in. We have sixty-six members and practically all dues paid. We are not in favor of a reduction in dues. We have had fourteen representatives from the state visit us this winter and we have had some very delightful meetings. Often we have men from southeastern Kansas visit us. We are very pleased with the situation.

DR. A. R. McComas, Sturgeon, Chairman, reminded the Council of the promise made to the Marion County Medical Society that the Council would assist in defraying expenses of the suit brought by the osteopaths in Hannibal against the board of trustees of Levering Hospital to compel the board of trustees to permit osteopaths to bring patients into Levering Hospital and treat them in that institution. The chairman then presented to the Council a bill, handed to him by Dr. H. B. Goodrich, Hannibal, from Messrs. Mahan, Mahan & Fuller for \$500 for legal services in the suit. The Chairman informed the Council that the suit had been won by the board of trustees, the court declaring that the board of trustees had full and unlimited right to say who should be permitted to enter the hospital either as a patient or as a physician to treat patients.

DR. W. H. BREUER, St. James, moved that the Council authorize the payment of this bill for \$500. Seconded and carried.

DR. O. S. GILLILAND, Kansas City, Councilor for the 13th District, reminded the Council of the request he had laid before the Council at its annual meeting in Columbia, December 9, 1929, for assistance in the payment of a bill from Messrs. Scarritt, Jones, Seddon & North for \$1,132.50 for legal services in the suit against Jackson County Medical Society for \$250,000 by the McCleary Sanitarium, formerly of Kansas City and now of Excelsior Springs. The suit, Dr. Gilliland informed the Council, has been dismissed by the plaintiff.

The Chairman reminded the members that this matter had been held in abeyance until now because overtures had been made to the Board of Trustees of the American Medical Association for financial assistance from the parent body in the payment of this bill. The chair informed the members that the Board of Trustees of the American Medical Association had declined to assist us financially in this connection.

DR. W. H. BREUER, St. James, moved that \$500 be paid to the Jackson County Medical Society to apply on the bill from Messrs. Scarritt, Jones, Seddon and North, for services in the suit. Seconded and carried.

### Wednesday, May 14, 1930—Afternoon Session

The second meeting of the Council convened at the Elks' Club, Hannibal, Wednesday, May 14, 1930, at 4:30 p. m., the Chairman, Dr. A. R. McComas, Sturgeon, presiding.

On motion, the reading of the minutes of the previous meeting was dispensed with.

The Auditing Committee reported as follows:

### REPORT OF AUDITING COMMITTEE

May 13, 1930.

We, the Auditing Committee, have examined the books of the Secretary and of the Treasurer and find them to be correct.

We also wish to compliment Dr. Goodwin and Dr. Hawkins on the accurate and concise way in which they keep the books.

D. A. BARNHART, Chairman,  
B. KURT STUMBERG,  
J. C. B. DAVIS.

DR. W. H. BREUER, St. James, moved that the report of the Auditing Committee be adopted. Seconded and carried.

The election of officers resulted in the following being elected:

Chairman of Council, Dr. A. R. McComas, Sturgeon (reelected).

Vice Chairman of Council, Dr. W. H. Breuer, St. James (reelected).

Treasurer of Association, Dr. G. W. Hawkins, Salisbury (reelected).

Secretary of Association, Dr. E. J. Goodwin, St. Louis (reelected).

Executive Committee: Dr. A. R. McComas, Sturgeon; Dr. W. H. Breuer, St. James; Dr. Ralph L. Thompson, St. Louis.

DR. W. H. BREUER, St. James, moved that the salary of the Treasurer be increased to \$500 per annum, payable monthly. Seconded and carried.

Just before declaring adjournment, Dr. A. R. McComas, Sturgeon, Chairman, called the attention of the Council to the presence of a former councilor who had served the Association for very many years and only recently had resigned the position of Councilor in order to make way for a younger man to carry on the work. Dr. McComas asked the Council not to adjourn until we had shown our love, respect and admiration for this man, who is one of God's noblemen, Dr. Thomas Jefferson Downing, New London. All the members rose and applauded Dr. Downing.

DR. DOWNING thanked the members for the tribute they had paid to him and said he would always have the welfare of the organization foremost in his thought and heart.

On motion the Council adjourned *sine die*.

### MINUTES OF THE GENERAL MEETING Elks' Club, Hannibal, Tuesday, May 13, 1930— Morning Session

The first scientific session of the 73rd Annual Meeting of the Missouri State Medical Association convened at Hannibal, Tuesday, May 13, 1930, at 8:30 a. m., the President, Dr. T. W. Cotton, Van Buren, presiding.

The following papers were read in the Symposium on Contagious Diseases:

"Diagnosis of Diphtheria," Dr. John Zahorsky, St. Louis.

"Treatment of Diphtheria," Dr. E. H. Rohlfing, St. Louis.

"Prevention of Diphtheria," Dr. Adrien Bleyer, St. Louis.



"Prevention and Treatment of Scarlet Fever," Dr. Harry M. Gilkey, Kansas City.

This symposium was discussed by Drs. Urban J. Busiek, Springfield; J. F. Chandler, Oregon; W. W. Johnston, Farmington; P. D. Gum, West Plains; Dr. Zahorsky in closing.

Dr. M. J. Lonsway, St. Louis, read a paper entitled "The Underfed Infant."

Discussion by Dr. John Zahorsky, St. Louis.

Dr. Howard H. Bell, St. Louis, read a paper entitled "Allergy and Immunity in Tuberculosis," illustrated with lantern slides.

Discussion by Drs. Edwin J. Schisler, St. Louis; Sam H. Snider, Kansas City; Dr. Bell in closing.

Dr. Sam H. Snider, Kansas City, read a paper entitled "The Indication for Artificial Pneumothorax in Tuberculosis," illustrated with lantern slides.

Discussion by Dr. Howard H. Bell, St. Louis, and Dr. Snider in closing.

Dr. G. Wilse Robinson, Jr., Kansas City, read a paper entitled "Hemiplegia; Its Causes and Treatment."

Discussion by Drs. G. Wilse Robinson, Sr., Kansas City; C. D. Humbert, Barnard, and Dr. Robinson, Jr., in closing.

Dr. D. L. Sexton, St. Louis, read a paper entitled "Endocrinology; Its Application in General Practice."

Discussion by Dr. G. Wilse Robinson, Jr., and Dr. Sexton in closing.

On motion the Tuesday morning session adjourned.

#### Tuesday, May 13, 1930—Afternoon Session

The second scientific session of the Annual Meeting convened at 1:30 p. m., the President, Dr. T. W. Cotton, Van Buren, presiding.

The following papers were read in the Symposium on Chest Diseases in Childhood:

"Acute and Chronic Bronchitis," Dr. Caldwell B. Summers, Kansas City.

"Surgical Treatment of Empyema," Dr. James G. Montgomery, Kansas City.

"Pulmonary and Tracheobronchial Gland Tuberculosis in Childhood," Dr. T. C. Hempelmann, St. Louis.

This symposium was discussed by Drs. J. F. Chandler, Oregon; Harry M. Gilkey, Kansas City; J. T. Hornback, Nevada; Drs. Montgomery and Hempelmann in closing.

Dr. Ellis Fischel, St. Louis, read a paper entitled "Treatment of Cancer of the Tongue."

Dr. W. J. Gallagher, St. Louis, read a paper entitled "Primary Carcinoma of the Fallopian Tube."

Dr. Donald R. Black, Kansas City, read a paper entitled "Circulatory Disturbances in Diabetes."

Discussion by Dr. A. H. Marshall, Charleston, and Dr. Black in closing.

Dr. James R. Elliott, Kansas City, read a paper entitled "Arthritis of the Feet."

Discussion by Drs. Robert E. Breuer, Newburg; J. T. Hornback, Nevada; M. Pinson Neal, Columbia; Dr. Elliott in closing.

On motion the Tuesday afternoon session adjourned.

#### Wednesday, May 14, 1930—Morning Session

The Wednesday morning scientific session convened at 8:30 o'clock, President T. W. Cotton, Van Buren, presiding.

The following papers were read in the Symposium on Gynecology and Obstetrics:

"Puerperal Infection," Dr. Otto H. Schwarz, St. Louis.

"Gynecological Care of the Puerperium," Dr. M. A. Hanna, Kansas City.

"Selective Surgery in Uterine Prolapse," Dr. H. S. Crossen, St. Louis.

"The Sedimentation Test in Relation to Pelvic Disorders," Dr. Fred B. Kyger, Kansas City.

"Uterine Hemorrhage," Dr. Charles D. O'Keefe, St. Louis.

This symposium was discussed by Drs. W. C. Gayler, St. Louis; J. T. Hornback, Nevada; A. H. Marshall, Charleston; T. R. Ayars, St. Louis; W. B. Spalding, Plattsburg; and Drs. Schwarz, Hanna, Crossen, Kyger, and O'Keefe in closing.

Dr. M. Pinson Neal, Columbia, read a paper written in conjunction with Dr. Burton T. Simpson, Buffalo, N. Y., entitled "Diseases of the Male Breast."

Discussion by Dr. F. G. Nifong, Columbia.

Dr. M. L. Klinefelter, St. Louis, read a paper entitled "Fractures Involving the Elbow."

Dr. Frederick B. Campbell, Kansas City, gave a motion picture demonstration of "The Diagnosis of Common Anorectal Diseases."

This demonstration was made possible through the courtesy of Mr. Cramblet, representative of the Petrolagar Laboratories, who offered the use of his apparatus and volunteered to operate it. Through a misunderstanding the motion picture apparatus belonging to the Association was not brought to the meeting.

Dr. J. W. Thompson, Jr., St. Louis, read a paper entitled "Duodenal Ulcer; Surgical Treatment, with Case Reports."

Discussion by Dr. Arthur C. Clasen, Kansas City.

During this session the President introduced Dr. William Gerry Morgan, Washington, D. C., President-Elect of the American Medical Association.

On motion the Wednesday morning session adjourned.

#### Wednesday, May 14, 1930—Afternoon Session

The Wednesday afternoon session convened at 1:30, Dr. T. W. Cotton, Van Buren, presiding.

Dr. Theo. H. Hanser, St. Louis, read a paper entitled "Toxic Goiter; Early Symptoms, Diagnosis and Treatment."

Discussion by Drs. Sinclair Luton, St. Louis; J. W. Thompson, St. Louis; Dr. Hanser in closing.

Dr. Willard Bartlett, St. Louis, read a paper entitled "A Modern Conception and Plan of Anesthesia."

Discussion by Drs. Lee Dorsett, St. Louis; G. W. Hawkins, Salisbury; A. H. Marshall, Charleston; W. C. Gayler, St. Louis; A. P. Munsch, St. Louis; C. A. Wells, Quincy, and Dr. Bartlett in closing.

At this time our guest, Dr. William Gerry Morgan, Washington, D. C., President-Elect of the American Medical Association, spoke a few words of greeting to the Association. Dr. Morgan said:

Mr. President, Members of the Missouri State Medical Association: It seems to me you are getting a pretty big dose of Dr. Morgan from Washington today. I am enormously pleased and gratified to be here. I count a good many friends in the State of Missouri. This year during my term as President-Elect I have assumed the privilege of accepting only those invitations to visit societies where it gives me pleasure. Next year I shall have to be the hack horse and go where I am ordered. But of all the invitations I have received, none has gratified me as much as the one that came from this Association. I appreciate it very much, and now that I have come I am doubly glad and thankful for the invitation.

I have visited a good many societies at different times during the past five years in connection with various organizations, and I have come instinctively to measure the men in the work which is being done in various localities, and I may say that the men you have sent to the House of Delegates of the A. M. A. stand in the front rank of the House of Delegates, and show what the general average in the practice of medicine in this state is. We all feel and know now what we did not feel and know ten years ago, that the bulwark of medicine lies in the actual bedside and hospital

work done throughout the country. We have to have the superscientist. I will not say, as did a speaker in a neighboring state, that they are necessary evils. They are necessary goods. But what good is it for a man to produce something if there is no consumption of his product? Without the bedside men and the hospital men all the scientific research work would go for nothing; it would not stand for progress. It is such men as I see before me today who are using the products of the research laboratories.

In many places I am asked to say something about the American Medical Association. Here in Missouri it is not necessary because the American Medical Association is thoroughly known to you all through the wideawake, live, progressive men that you send to the House of Delegates. You are to be congratulated on the representatives which you send, and you need have no fear of the reputation of the Missouri State Medical Association in the hands in which you have placed it. I appreciate this opportunity to speak to you.

Dr. James Barrett Brown, St. Louis, read a paper entitled "Late Treatment of Burns of the Extremities," illustrated with lantern slides.

Discussion by Drs. F. J. Tainter, St. Louis; W. T. Coughlin, St. Louis; Dr. Brown in closing.

Dr. J. De Voine Guyot, Higginsville, read a paper entitled "Some Problems in the Diagnosis and Treatment of Conditions in the Aged."

Dr. Arthur C. Clasen, Kansas City, read a paper entitled "Obesity and Leanness; Classification and Management."

On motion the Wednesday afternoon session adjourned.

#### Wednesday, May 14, 1930—Evening Session

The Wednesday evening session of the Annual Meeting convened at 8:00, President T. W. Cotton, Van Buren, presiding.

Dr. W. C. Gayler, St. Louis, President-Elect, presided while President Cotton read his address.

Dr. W. C. Gayler, St. Louis, President-Elect, read an address entitled "Our Obvious Shortcomings."

The guest of honor, Dr. William Gerry Morgan, Washington, D. C., President-Elect of the American Medical Association, delivered an address entitled "Is the Medical Profession Discharging Its Full Duty to the Public?"

On motion the Wednesday evening meeting adjourned.

#### Thursday, May 15, 1930—Morning Session

The Thursday morning scientific session of the Annual Meeting convened at 9:00 o'clock, Dr. W. C. Gayler, St. Louis, the newly elected President, presiding.

The following papers were read in the Symposium on Abdominal Surgery:

"Traumatic Lesions of the Abdomen," Dr. C. E. Hyndman, St. Louis.

"Some Unusual Abdominal Conditions," Dr. A. O. Fisher, St. Louis.

"Early Stages of Gallbladder Disease," Dr. Robert D. Irland, Kansas City.

"Costly Delays in Abdominal Conditions," Dr. Wilbur Smith, Springfield.

This symposium was discussed by Drs. Francis Reder, St. Louis; Edward H. Skinner, Kansas City; C. D. Humbert, Barnard; Drs. Hyndman, Irland and Smith in closing.

Dr. James R. McVay, Kansas City, read a paper entitled "Bilateral Stones in the Kidney."

Dr. C. E. Burford, St. Louis, read a paper, written in conjunction with Dr. J. E. Glenn, St. Louis, entitled "Further Observations on Nephropexy and Ureteroplasty for Relief of Urinary Obstruction and Pain."

Dr. Robert Vinyard, St. Louis, read a paper entitled "Spinal Anesthesia in Bladder Surgery; Report of Cases."

Dr. Grayson Carroll, St. Louis, read a paper entitled "Urinary Bladder Obstruction Not Due to Prostatic Hypertrophy."

These four papers were discussed by Drs. Edward H. Skinner, Kansas City; Neil Moore, St. Louis; R. Lee Hoffmann, Kansas City; Dr. Vinyard in closing.

Dr. W. T. Coughlin, St. Louis, read a paper entitled "Sympathectomy for Arthritis."

This paper was discussed by Drs. J. J. Farrell, Hannibal, and Dr. Coughlin in closing.

On motion the Thursday morning session adjourned.

#### Thursday, May 15, 1930—Afternoon Session

The Thursday afternoon scientific session of the Annual Meeting convened at 1:30 o'clock, President W. C. Gayler, St. Louis, presiding.

Dr. Willis B. Young, St. Louis, read a paper entitled "Coexistent Gallbladder, Renal and Ureteral Stones."

Discussion by Dr. Neil Moore, St. Louis, and Dr. Young in closing.

Dr. R. Lee Hoffmann, Kansas City, read a paper entitled "So-Called Pyelitis."

Discussion by Dr. Frederick C. Narr, Kansas City.

Dr. Frederick C. Narr, Kansas City, read a paper entitled "Structural Changes in the Kidneys in Hypertension and Glomerular Nephritis."

Discussion by Dr. R. Lee Hoffmann, Kansas City.

Dr. B. J. McMahon, St. Louis, read a paper entitled "Significance of Systemic Manifestations of Paranasal Infection."

Dr. E. R. DeWeese's paper on "Bronchosinusitis; the X-Ray Examination and Its Correlation With Clinical Symptoms," was read by Dr. Edward H. Skinner.

Dr. E. T. Hornback, Hannibal, read a paper entitled "Hereditary Cataract."

Discussion by Drs. Harold Swanberg, Quincy, Illinois; J. B. Stokes, Harwood; and Dr. Hornback in closing.

In the absence of Dr. Paul F. Cole, Springfield, the lantern slides to accompany his paper entitled "Phytobezoar (Diospyri Virginianae)" were shown by Dr. Edward H. Skinner.

On motion, the 73rd Annual Meeting of the Missouri State Medical Association adjourned *sine die*.

#### TWENTY-SECOND ANNUAL MEETING OF MISSOURI SOCIETY OF MEDICAL SECRETARIES

##### Wednesday, May 14, 1930—Mark Twain Hotel

The Twenty-Second Annual Meeting of the Missouri Society of Medical Secretaries was held at the Mark Twain Hotel, Wednesday evening, May 14, 1930. In the absence of the president, Dr. J. M. Singleton, Kansas City, Dr. C. D. Humbert, Barnard, Vice President, presided. Dr. Emmett P. North St. Louis, acted as toastmaster.

Immediately following the banquet the following officers were elected for the ensuing year: President, Dr. C. D. Humbert, Barnard; vice president, Dr. H. B. Goodrich, Hannibal; secretary, Dr. J. T. Hornback, Nevada.

Dr. T. W. Cotton, Van Buren, President of the State Association, was introduced by the chairman, Dr. C. D. Humbert, Barnard, and said:

It is a great pleasure to talk to the secretaries of the State Medical Association. To my way of thinking the secretaries are about all of the county societies. If we have a good secretary we get some good out of the county society, and if not the society does not amount to much.

I have nothing special in mind to talk about, but I think Dr. Morton in the meeting yesterday uttered a profound truth when he said that one of the big things before the medical



profession of Missouri today is rural sanitation. I have been much interested in this subject for many years. I am from the country and I think this question ought to appeal to the doctors of the state. The doctors are the custodians of the public health, and if we are going to protect the public we cannot begin too soon on this question of rural sanitation. Rural southern Missouri is not so different from other parts of the country. The toilet situation is most urgent in connection with the question of public health, and it is woefully insanitary. Most of the towns in southern Missouri do not have a water supply, and that means that they must have some modern equipment provided, and a good many times the equipment is not properly constructed or is neglected when it is built right. This neglected or inadequate equipment in fly season is a menace to public health and I do not know of anything that could better engage our attention than to correct that sort of thing.

Another thing we need to urge is school inspection. The work of the schools is important. I suppose each county has its own health commission. I have been working on that job for a good while myself. We had a public health nurse down our way and she helped to put over a good many of these things, among others, teaching the school children the importance of sanitation. I visited a school last fall and asked a boy about twelve years old some questions and was much interested in his answers. They had had some samples of soap distributed to them and I asked him "What is the use of washing your hands?" "Because of germs." "What are germs?" "They make you sick." "What kind of disease comes from germs?" "Typhoid fever, tuberculosis, dysentery and malaria." Then I said, "Tell me something about how you get typhoid fever?" "We eat it or drink it." "Well, how about tuberculosis?" "We breathe it." Then I said, "How do you get malaria?" He hesitated a good while, and finally a little girl spoke up, "A mosquito bites you." They had been taught those things, and I said to myself that those boys and girls when they grow up will not have those diseases. It occurs to me that that is the real common-sense way to get at malaria and a lot of these things—get the children to know about them. If they are properly taught they will not have anything to do with a housefly or a mosquito.

I have been working on the public health job for twenty-nine years. Sometimes the court is of one political complexion, sometimes another, but that makes no difference to me. We make our own sanitary regulations down there, and you have to put on your fighting clothes if you are a public health officer in southern Missouri. You have to get after them. We keep our county pretty well cleaned up. I think it will pass muster with any of the southern Missouri counties.

DR. EMMETT P. NORTH: Before we go any further I would like to propose a toast to our good friend, Dr. Tinsley Brown, Hamilton, a secretary for many years and one of the past-presidents of the State Association. No man has done more for the organization than Dr. Tinsley Brown.

The members arose and applauded Dr. Brown.

DR. TINSLEY BROWN: I have always been a medical society man. I joined the Association in 1875, and the first time I attended a state meeting was in 1880 at Carthage. Someone said the county secretary was important. I am not saying anything, but I do not believe we would have had any county society if it had not been for me.

I am too old to attend many more meetings, but I came today. Of course I am sad. My wife died last Friday. I did not want to come, but my children said, "You go to the meeting—go and enjoy it."

DR. NORTH: We have a distinguished guest tonight who has come all the way from Washington to be with us. Dr. Morgan has been one of the best friends Missouri has ever had. He went to Dallas and helped to fight our battles and he was right on the firing line when Dr. Jackson was elected by acclamation President-Elect of the American Medical Association. Missouri has never asked anything of Gerry Morgan that he has not delivered. I introduce him tonight as the first citizen of our land in medicine, William Gerry Morgan, President-Elect of the American Medical Association.

DR. MORGAN: It is a very good thing for an after-dinner speaker to know what he is going to talk about. In the days of James G. Blaine there was "Rum, Romanism and Rebellion" to talk about. That wore out, and then came

Chauncey DePew with his easy and fluent stories, and that went for awhile. Then came hirth control, but soon the baby had to give a year's notice and ask permission before it could be born, so that topic wore out. Then came prohibition, but now nobody drinks so we can't talk about prohibition. Finally, we had the high cost of medical care, but that has become threadbare and we know there is no such thing, so what is there left? And now your Secretary gives me a brand-new title, "New Shapes in the Sky." That was handed to me when I was leaving my office, and I don't know what it means, unless it is that the sky is the limit.

We have to be sort of careful in speaking of new things in medicine as well as in other lines. We spoke of our new plauet, and found it to be a comet. We spoke of new cures for cancer, and we look around and there is no new cure. Then I go down to South Carolina and find they cure thyroid trouble by feeding carrot tops. They tell me down there that we can throw away our iodine and iodide salts and other remedies; that if we feed our boys and girls carrot tops the thyroid trouble disappears "like snow upon the desert's dusty face." Then they tell us that in pernicious anemia we do not need to use liver, or arsenic—you do not have to use anything you know anything about, but you want to raise an oyster bed. You feed your patients oysters, oysters, oysters, and the pernicious anemia disappears. In another generation it will be wiped off the earth. Then coming to things that do not appeal to us quite so much, we find we cannot smoke tobacco any more. Why? Because we are all being poisoned by arsenic. In a short time there will be no prohibition of tobacco, like alcohol, because the arsenic will kill all the tobacco. So it is difficult to speak of new things seriously.

I had thought to bring to you some of the new things in the evolution of medicine, but the time is short and it is necessary to go to the General Meeting, so I will close by again expressing my profound appreciation of your invitation. I have had a bully time from start to finish, and as long as I live this visit will be a happy memory.

The Chairman, Dr. C. D. Humberd, Barnard, introduced Dr. Howard B. Goodrich, Hannibal, Secretary of Marion County Medical Society and chairman of the General Committee on Arrangements.

DR. H. B. GOODRICH, Hannibal: I suppose most of you know that we have had a Committee of Arrangements here, and one of my duties was to see that Dr. Goodwin got the program printed all right. When I ran over it I found I was supposed to talk on Mark Twain, but as most of you heard Morris Anderson speak on that subject, and much better than I could do, I will talk of something else. Of course we all feel that he was one of our grandest citizens—a long time ago, but the memories are still with us, and we have some memorials that I suppose you have seen.

One or two things have occurred to me, and one is that the secretaries might do much to encourage the use of the postgraduate work offered by the Association. They will send men to talk to the county society meetings. We have used that service frequently and I think all the societies would find it helpful, and especially helpful to the secretaries in getting attendance for the meetings. In some cases the county society is too small to have outside men come in, but two or three counties could go together and they will all benefit. There are certain counties in the state that are doing that regularly, with great benefit to all members of the profession in those districts.

Another matter is one that came up Monday, when the House of Delegates voted to increase the sum allowed a man in case of suit against him from \$100 to \$300. That certainly is a drawing card for the secretaries who are trying to get new members. If you are a member of the Association and somebody threatens suit against you for some service that did not seem to give proper results, that is, malpractice, and you have the State Association behind you, not only the moral help but the help of the committee of which Dr. Hyndman is chairman, you can feel more secure.

There are some counties that have just about all the physicians that would be logical members, and others do not. In Hannibal there are three or four that I would like to see members. Perhaps I have not gone after them as I should. Perhaps now we can influence them to become members or to come back into the fold.

I would like to thank the members for coming here. We were responsible for some things, although of course Dr. Goodwin is the man who really runs the show. If you have enjoyed your stay here and have gotten something out of it, our Marion County Society is very grateful.

DR. C. D. HUMBERD: I would like to thank you all for your attendance. I hope to see you in Joplin next year.

## REGISTRATION AT 73RD ANNUAL MEETING

Hannibal, May 12-15, 1930

- Alford, R. L., Vandalia  
Allee, W. L., Eldon  
Allen, W. H., Sr., Rich Hill  
Andrae, R. L., Louisiana  
Archer, P. C., Shelbyville  
Ayars, T. R., St. Louis  
Bailey, Fred W., St. Louis  
Banks, H. L., Hannibal  
Barnhart, Don A., Huntsville  
Bartlett, Ezekiel M., Clarks-  
ville  
Bartlett, Willard, St. Louis  
Baskett, J. N., Hannibal  
Baysinger, S. L., Rolla  
Beckemeyer, Wm. A., Sedalia  
\*Beirne, H. B., Quincy, Ill.  
Bell, Howard H., St. Louis  
Berrey, R. W., Mexico  
Biggs, James B., Bowling  
Green  
Biggs, M. O., Louisiana  
Birney, W. P., Hannibal  
\*Bitter, A. H., Quincy, Ill.  
\*Bitter, M. E., Quincy, Ill.  
Black, Donald R., Kansas  
City  
Bleyer, Adrien, St. Louis  
Bloom, W. A., Fayette  
Brackklein, Wm. A., Hig-  
ginsville  
Brashear, Howard C., Mexico  
Breuer, Robert E., Newburg  
Breuer, W. H., St. James  
Bridges, James R., Kahoka  
Bristow, George M., Prince-  
ton  
Brown, James B., St. Louis  
Brown, Joel C., Lewistown  
Brown, John E., Perry  
Brown, Tinsley, Hamilton  
Bruner, Claude R., Columbia  
Burford, C. E., St. Louis  
Burke, J. P., Jr., California  
Bush, F. W., Hannibal  
Busiek, Urban J., Springfield  
Campbell, F. B., Kansas City  
Carr, Archie D., St. Louis  
Carroll, Grayson, St. Louis  
Carter, H o w a r d, Jefferson  
Barracks  
Chandler, John F., Oregon  
Chenoweth, L. C., Joplin  
Chilton, J. C., Hannibal  
Clasen, Arthur C., Kansas  
City  
Clinton, Lloyd B., Carthage  
Cole, Paul F., Springfield  
Cook, R. F., Carrollton  
Conley, Dudley S., Columbia  
Cory, Harriett S., St. Louis  
Cotton, T. W., Van Buren  
Coughlin, W. T., St. Louis  
\*Clark, O. T., Keokuk, Ia.  
Cowan, R. D., Aurora  
Crossen, H. S., St. Louis  
Daniel, H. O., Hannibal  
Davis, J. C. B., Willow Spgs.  
Davis, Paul C., Moberly  
Dean, Leslie E., Maryville  
DeLamater, Hasbrouck, St.  
Joseph  
\*DeVilbiss, E. F., Kansas  
City, Kans.  
Dixon, Chas. H., Moberly  
Dodson, John F., Kirksville  
Donaldson, Clyde O., Kansas  
City  
Dorsett, Lee, St. Louis  
Downing, T. J., New London  
Dumbauld, B. A., Webb City  
Dyer, C. P., St. Louis  
Elam, Wm. T., St. Joseph  
Elliott, James R., Kansas City  
Esselbruegge, F. C., St. Louis  
\*Falk, O. F., Kansas City  
Fallett, Charles E., DeSoto  
Farrell, J. J., Hannibal  
Farthing, R. R., Ozark  
Fellows, Ralph M., Salisbury  
Ferguson, Arthur D., Fulton  
Fischel, Ellis, St. Louis  
Fleming, T. S., Moberly  
Flynt, Joseph F., Paris  
Francka, W. F., Hannibal  
\*Frankel, Herbert G., St.  
Louis  
Frischer, Julius, Kansas City  
Funsch, E. C., St. Louis  
Furnish, J. A., Shelbyna  
Gafney, G. T., St. Louis  
Gallagher, Wm. J., St. Louis  
Gayler, Wenzel O., St. Louis  
Gilkey, Harry M., Kansas  
City  
Gillham, Frank W., Jefferson  
City  
Gilliland, C. E., St. Louis  
Gilliland, O. S., Kansas City  
Glaser, M. J., St. Louis  
Glennon, William P., St.  
Louis  
Goodrich, H. B., Hannibal  
Gove, H. S., Linn  
Grace, Clarence M., Chilli-  
cothe  
Gradwohl, R. B. H., St. Louis  
Green, John, Jr., St. Louis  
\*Greene, Charles W., Colum-  
bia  
Griffin, Fred, Mexico  
Gum, Posey D., West Plains  
Gummig, E. A., St. Joseph  
Gunn, A. J., Versailles  
Guyot, J. De Voine, Higgins-  
ville  
Hetherlin, T. Guy, Louisiana  
Hamlin, Clyde W., Palmyra  
Hanna, Minford A., Kansas  
City  
Hanser, Theo. H., St. Louis  
Hardesty, J. W., Hannibal  
Harris, E. S., Independence  
\*Harris, R. A., Quincy, Ill.  
Harrison, J. Frank, Mexico  
Hawkins, George W., Salis-  
bury  
Hayden, John G., Kansas  
City  
Haynes, R. C., Marshall  
Hays, B. W., Jackson  
Hays, Wm. H., Hannibal  
Hempelmann, Theo. C., St.  
Louis  
Hill, I. E., Hannibal  
\*Hire, Harry E., St. Louis  
Hobart, Carl, St. Louis  
Hoffmann, R. Lee, Kansas  
City  
Hogg, Garrett, Springfield  
Holbrook, Ralph W., Kansas  
City  
Holbrook, W. F., Kansas City  
Hornback, Edward R., Joplin  
Hornback, E. T., Hannibal  
Hornback, J. T., Nevada  
Howard, Stanley P., Jeffer-  
son City  
Humberd, Charles D.,  
Barnard  
Humphrey, Henry M., Bra-  
shear  
Hyland, Robert F., St. Louis  
Hyndman, C. E., St. Louis  
\*Irwin, Grant, Quincy, Ill.  
Jackson, Jabez N., Kansas  
City  
James, Luther S., Blackburn  
James, R. M., Joplin  
Jennett, J. Harvey, Kansas  
City  
Jostes, Frederick A., St. Louis  
Johnston, W. W., Farming-  
ton  
Jolley, J. F., Mexico  
\*Judge, J. T., St. Louis  
Kampschmidt, August W.,  
Columbia  
Kennedy, T. R., St. Louis  
Kenney, William L., St.  
Joseph  
Kerr, Homer L., Crane  
Kibbe, J. H., Monroe City  
Kieffer, Roland S., St. Louis  
\*King, E. L., St. Louis  
Kleinschmidt, C., St. Louis  
Kleinfelter, M. L., St. Louis  
Koch, Otto W., Clayton  
Krause, Irl B., Jefferson City  
Kuhlmann, F. C. E., St. Louis  
Kyger, Fred B., Kansas City  
Kramolowsky, H. H., St.  
Louis  
Langsdorf, Herbert S., St.  
Louis  
\*Laybourn, Ross L., Jeffer-  
son City  
Leavy, Charles A., St. Louis  
LeFevre, H. M., Shelbyville  
Lewellen, Charles P., Louis-  
iana  
Lillard, Archie H., La Belle  
Liston, Elisha H., Nevada  
Long, Frank B., Sedalia  
Lonsway, Maurice J., St.  
Louis  
Love, Joseph W., Springfield  
Lucke, Eugene M., Hannibal  
Lund, Herluf G., St. Louis  
\*Lutman, H. N., Versailles  
Luton, Sinclair, St. Louis  
McAlester, A. W., Kansas  
City  
McComas, Arthur R., Stur-  
geon  
McMurry, M. C., Paris  
McMahon, Alphonse, St.  
Louis  
McMahon, B. J., St. Louis  
\*McReynolds, Ralph, Quincy  
Ill.  
McVay, James R., Kansas  
City  
Mankopf, Bert E., Wash-  
ington  
Mantz, Herbert L., Kansas  
City  
Marshall, Alfred H., Charles-  
ton  
Martin, W. T., Albany  
\*Martz, D., St. Louis  
Mays, Frank G., Washington  
Mellies, George A., St. Louis  
Meredith, Joseph J., St. Louis  
\*Molz, C. O., Quincy, Ill.  
Montgomery, E., Quincy, Ill.  
Montgomery, J. G., Kansas  
City  
Moore, Josiah G., Mexico  
Moore, Neil S., St. Louis  
Morton, Daniel, St. Joseph  
Mosby, C. V., St. Louis  
Moss, Harvey E., Kansas  
City  
Motley, E. R., Hannibal  
\*Mox, Thomas B., Quincy,  
Ill.  
Munsch, Augustus P., St.  
Louis  
Myers, Wilson A., Kansas  
City  
Neal, M. Pinson, Columbia  
Narr, Frederick C., Kansas  
City  
Neilson, C. H., St. Louis  
Nickson, Charles E., Inde-  
pendence  
Nifong, Frank G., Columbia  
Noland, Moss R., Moberly  
North, E. P., St. Louis  
Norton, H. B., Hannibal  
O'Keefe, Charles D., St.  
Louis  
Oliver, Everett A., Pulaski  
Patrick, P. L., Marceline  
Patton, W. G., St. Louis  
Peden, Joseph C., St. Louis  
Petty, Wallace S., Jefferson  
City  
Pipkin, Walter D., Monroe  
City  
Ragan, Stephen T., Moberly  
Ragsdale, George M., Paris  
Rainey, Warren R., St. Louis  
Reichmann, Philip J., Han-  
nibal  
Reis, Carl J., St. Louis  
Ridge, F. I., Kansas City  
Riggs, John M., Wayland  
Robinson, G. Wilse, Kansas  
City  
Robinson, G. Wilse, Jr.,  
Kansas City  
Rodes, N. R., Mexico  
Rohlfing, Edwin H., St. Louis  
Rose, Frank H., Albany  
Russell, Richard L., Jeffer-  
son City  
Salyer, C. E., Hannibal  
Saunders, Louis E., Stewarts-  
ville  
Schisler, Edwin J., St. Louis  
Schmidt, H. H., Marthasville  
Schofield, L. J., Warrensburg  
Schulz, A. P. Erich, St.  
Charles  
Schwarz, Otto H., St. Louis  
Sexton, D. L., St. Louis  
Shanks, A. L., Hannibal  
Shelton, Edward C., Eldon  
\*Sherburne, A. H., Chicago,  
Ill.  
\*Shulian, O. F., Quincy, Ill.  
Shutt, C. H., St. Louis  
Sisson, William B., Kahoka  
Skinner, Edward H., Kan-  
sas City  
Slocumh, L. H., St. Louis  
Smith, E. S., Kirksville  
Smith, J. D., Shelbyna  
Smith, L. L., Bethel  
Smith, U. S., Hannibal  
Smith, Wilbur, Springfield  
Snider, Sam H., Kansas City  
Snodgrass, O. W., Frankford  
\*Spalding, W. B., Plattsburg  
\*Stevenson, Walter D.,  
Quincy, Ill.  
Stewart, J. Edgar, St. Louis  
Stewart, James, Jefferson  
City  
Stokes, James B., Hannibal  
Sultzman, F. E., Hannibal  
Summers, Caldwell B., Kan-  
sas City  
\*Suter, R. E., Perry  
Stryker, G. V., St. Louis  
\*Swanberg, Harold, Quincy,  
Ill.  
Tainter, F. J., St. Louis  
Talbot, Hudson, St. Louis  
Timberman, John H., Chilli-  
cothe  
Thompson, Ralph L., St.  
Louis  
Thierry, C. W., St. Louis  
Thompson, J. W., Jr., St.  
Louis  
Titsworth, Guy, Sedalia  
Van Ravenswaay, Alex.,  
Boonville  
Van Ravenswaay, C. H.,  
Booneville  
Vinyard, George W., Jackson  
Vinyard, Robert, St. Louis  
Wallace, F. B., Kansas City  
Waters, W. T., New London  
Welch, W. A., Calleo  
\*Wells, C. A., Quincy, Ill.  
\*West, W. K., Oklahoma City  
West, Wm. M., Monett  
\*Whittaker, Walter M.,  
Boonville  
Wiatt, William S., St. Louis  
Wilcoxon, T. Hurley, Bowl-  
ing Green  
Williams, R. S., Mexico  
\*Williams, W. W., Quincy,  
Ill.  
Willits, L. G., Kansas City  
Wise, H. J., Sparta  
Wood, A. M., Shelbyna  
Wright, James B., Trenton  
Yancey, E. F., Sedalia  
Young, Willis B., St. Louis  
Zahorsky, John, St. Louis  
Zeinert, O. B., St. Louis  
\*Zeitler, Wm. T., St. Louis  
Ziegler, W. H., Booneville  
Total, 292.  
\* Visitor.



**CLAY COUNTY MEDICAL SOCIETY**

The regular meeting was held in Liberty, April 24, the session beginning with a dinner at the Party Place, Liberty's fashionable cafe. Twenty-six members and their wives attended. Dr. R. E. Sevier, Liberty, vice president, presided, the president, Dr. E. C. Robichaux, Excelsior Springs, not having arrived.

The scientific session began at the auditorium of William Jewell College with a remarkable moving picture of cell growth beginning with the embryo. The picture was a triumph in microphotography. Cell changes were shown in a few minutes which took as many hours in the living organism. Especially interesting was the exhibition of how radium emanation slowed down or stopped the activities of the cancer cell. The picture, made by Canti, is approved by the American Medical Association and is one that few will forget. Dr. W. H. Goodson, Liberty, had charge of the exhibit for the Society.

After a short drive to the Odd Fellows Hospital, Dr. John G. Hayden, Kansas City, delivered a lecture on "The Intravenous Injection Treatment of Varicose Veins." Dr. Hayden displayed various solutions used to obliterate the offenders: glucose, sodium chloride, quinine and urea hydrochloride, and salicylate of soda. He recounted numerous experiences of his own in hospital and private practice, both favorable and unfavorable. Dr. F. H. Matthews, house surgeon of the Odd Fellows Home Hospital, Liberty, provided two aged patients for clinical demonstration. A very extensive discussion of the subject accompanied the clinic and Dr. Hayden answered many questions, evidencing the profound interest of the members present.

The Society unanimously indorsed the move of the Cole County Medical Society to bring about a reduction of the annual dues of the State Association at the Hannibal meeting, and instructed the delegate to cooperate with others in securing the reduction.

Only a few members have not paid dues for 1930. Over a year ago it was voted to suspend all members who lapse over one year in the payment of dues.

J. J. GAINES, M.D., Secretary.

**JOINT MEETING OF GENTRY, HARRISON AND WORTH COUNTY MEDICAL SOCIETIES**

The medical societies of Gentry, Harrison, and Worth counties met in Albany, April 25, for a banquet and scientific meeting. The Woman's Auxiliary attended the banquet.

Dr. J. A. Crockett, Stanberry, Councilor for the district, spoke at the banquet relative to his work in this position. It was reported that *Hygeia*, the health journal of the American Medical Association, had been placed in all schools of Gentry County for the last six years through the cooperation of the Woman's Auxiliary, the Tuberculosis Association of the county, and the county superintendent of schools.

Following the banquet, Dr. L. H. Fuson, St. Joseph, was introduced by Dr. W. T. Martin, Albany, president of the Gentry County Medical Society. Dr. Fuson spoke on "The Doctor and the Neurotic Patient." The address was full of excellent points suitable for practical use for the general practitioner.

After a question and answer period, Dr. W. R. Moore, St. Joseph, spoke on "Scarlet Fever." He traced the history of the struggle to discover the cause, the development of serum to determine susceptibility, and a serum to treat the disease.

The meeting was the first of what is planned to be a number of tri-county meetings.

Those present were Drs. Fred Mull, Grant City; W. J. Harned, F. H. Broyles, Bethany; Lake Brewer, Ridgeway; Frank H. Rose, W. S. Campbell, W. T. Martin, J. T. Bickel, Albany; J. A. Crockett, Stanberry; L. H. Fuson, W. R. Moore, St. Joseph; Carl Bickel, St. Louis; G. F. Kling and H. C. McCoy, dentists of Albany.

**GRUNDY COUNTY MEDICAL SOCIETY**

The Grundy County Medical Society has elected the following officers for 1930: President, Dr. T. E. Moore, Trenton; vice president, Dr. G. W. Belshe, Trenton; secretary-treasurer, Dr. E. A. Duffy, Trenton; delegate, Dr. J. B. Wright, Trenton; alternate, Dr. E. C. Ambrose, Trenton; censors, Dr. W. A. Fuson, Trenton (term expires, 1933); Dr. O. R. Rooks, Trenton (term expires, 1932); Dr. J. F. Fair, Trenton (term expires, 1931).

E. A. DUFFY, M.D., Secretary.

**HENRY COUNTY MEDICAL SOCIETY**

The Henry County Medical Society met in the County Court Room at Clinton, April 16, with the following members present: Drs. J. R. Hampton, E. C. Peelor, G. S. Walker, and S. W. Woltzen, of Clinton; J. J. Russell, Deepwater. Guests: Drs. Don R. Black and T. G. Orr, of Kansas City, and R. S. Hollingsworth, Clinton.

Dr. Black spoke on "Hypertension" and Dr. Orr on "Diseases of the Thyroid." Both papers were very interesting and generally discussed.

A vote of thanks was given Drs. Black and Orr for their excellent papers.

On motion, Dr. R. S. Hollingsworth, Clinton, was elected a member of the Society.

S. W. WOLTZEN, M.D., Secretary.

**THE KANSAS CITY ACADEMY OF MEDICINE**

Meeting of March 21, 1930

THE SUPRARENALS.—By DR. A. E. KOEHLER, CHICAGO.

First described as early as 1563, little attention was paid to the suprarenal glands until the middle of the nineteenth century when Addison noted clinical symptoms associated with suprarenal disease, and Brown-Séquard proved their vital importance by causing death following their total removal in experimental animals. These glands have an extensive, intricate innervation, and a blood supply more abundant for their weight than any other organ in the body. They are of dual origin. The cortex, from the mesoderm of the genital ridge, comprises approximately three-fourths of the gland, and the medulla, the other fourth, is from primitive neuroblast masses.

Epinephrine, isolated from the medulla, possesses a vasoconstrictor principle and its clinical usefulness is limited to the following: (1) As a temporary cardiovascular stimulant in shock or cardiac failure; (2) as a vasoconstrictor in bleeding and in conjunction with local anesthesia; (3) as an antispasmodic in asthma (4) to restore vasomotor balance temporarily in urticarial conditions.

In experimental animals, removal of the suprarenal cortices seems responsible for death, and administration of epinephrine shortens rather than lengthens life. After bilateral suprarenal-

ectomy, the chief physiological disturbances noted have been, marked concentration of the blood, severe acidosis, low blood sugar, and terminal nitrogen retention. Clinical symptoms were anorexia, asthenia, bloody diarrhea and convulsions. Postmortem findings were injection, edema, petechiae and ulcers of the intestinal mucosa and injection and edema of the pancreas. Pigmentation has not been satisfactorily demonstrated, and the blood pressure dropped only at the moribund stage.

Negative results with substitution therapy raise the question as to the chief function of these glands being detoxifying organs *in situ*. Animals whose suprarenals have been excised are rendered more sensitive to toxins such as those of diphtheria or cobra venom, and to such drugs as morphine. Also, during toxic conditions in normal animals marked hypertrophy of the cortices has been demonstrated.

Clinically, little that is new has been added to the original description of Addison's disease except that severe anemia is not usually an outstanding finding. In the simple atrophic type the gradual onset has led to the erroneous diagnosis of neurasthenia; but in the later stages the symptoms closely resemble those found in a destructive process.

Concerning hypersuprarenalism, cases have been described in which paroxysmal hypertension was associated with medullary tumor and was relieved by extirpation. Other clinical conditions associated with hypertrophy or tumor of the suprarenal glands are pubertas praecox, virilism, hirsutism, and certain types of muscular hypertrophy.

Some time ago we called attention to a clinical group similar to that of Addison's disease which has responded to oral administration of a suprarenal preparation made in our laboratory. It is characterized by physical and mental asthenia and fatigableness, cardiovascular atonia with low systolic and pulse pressures and usually a low metabolic rate. Pigmentation is not necessarily present, and the chronicity together with this helps to separate it from true Addison's disease. It is distinguished from hypothyroid disease by its tendency to underweight, emotional and nervous instability and lack of response to thyroid medication. Unlike hyperthyroid disease, the basal metabolic rate is low, the pulse slow, the temperature subnormal, and there is no improvement on iodine medication.

Some of these patients improved during administration of the extract and had recurrences when therapy was stopped. Suprarenal preparations seemed to cause an increase in the metabolic rate for as long as forty-eight hours under certain conditions. In a few cases continuous administration seemed to depress the rate. In hypotension the blood pressure was elevated, sometimes only transiently. A diminution in the oxygen cost of work was noted in cases of general asthenia, and some cases of myasthenia gravis. The abnormal creatine excretion characteristic of asthenic patients was decreased. Carbohydrate combustion seemed facilitated. The specific dynamic effect of protein and carbohydrate ingestion was abolished in some cases. There was no evidence of blood regeneration, but in several cases of pernicious anemia reticulocyte stimulation comparable to that caused by the administration of liver was noted.

The suprarenal preparation used is unstable and even with repeated use of fresh preparations, in certain cases, there has been a disappearance of the beneficial results obtained.

## DISCUSSION

DR. O. O. STOLAND, Lawrence, Kansas: The administration of this particular suprarenal preparation not only affects fat or carbohydrate metabolism but seems to bring about correct metabolism in general. The findings presented were mostly taken from humans and do not need to be transposed as after animal experiments. The best way to detoxicate is to prevent the formation of toxins. In this instance, it may be that by obtaining the proper kind of metabolism the formation of toxins is prevented. These experiments may eventually lead us to the solution of the function of the suprarenal cortex.

DR. RALPH HOLBROOK: During the World War, French surgeons applied the name "hypo-adrenia" to new men who had been freshly gassed. In the last three years I have seen cases in which weakness was the outstanding symptom and low blood sugar levels were found. These patients improved on chocolate. I suggest that these may represent cases of carbohydrate intolerance.

DR. FRANK HALL: It really doesn't make any great difference where the suprarenal gland comes from—the point is, what does it do in adult life? I am not so sure of the distinct nervous and cortical elements. It is hard for me to believe that Addison's disease may exist without destruction of the gland, and it is also unthinkable that oral administration of adrenal substance is effective.

DR. FRANK RIDGE: I regard the suprarenal gland as a switchboard for the entire system. Here are found prototypes of the other glands of internal secretion, and I believe that it may transmit, reciprocate and substitute for the other glands. It is therefore of importance in immunity. It is also probable that it is an equalizer and stabilizer among other glands, including the gonads and gastric secretory glands.

DR. GEORGE KNAPPENBERGER: I should like to hear the doctor make some comment on the work carried out on the Pacific Coast as it concerns cancer.

DR. R. M. ISENBERGER: How can your suprarenal substance be introduced so that it may be maintained in the body at a certain level? Dr. Rowntree, working with one hundred cases of Addison's disease, found that hypodermic or rectal administration of suprarenal extract prolonged the life of the patients. It has been found experimentally that if one gland was removed and the other denervated the animal died unless at least a month elapsed between the two operations. Therefore, the nerve supply may have much to do with the function of the glands.

I should like to ask Dr. Koehler if there is a greater choline concentration in the suprarenal cortex than elsewhere in the body?

DR. RUSSELL HADEN: I was interested in what Dr. Koehler had to say about the production of reticulocytosis with his extract. It is a matter of interest that Osler, in discussing diseases of the blood-forming organs in one of the oldest systems of medicine, included Addison's disease in this list.

DR. KOEHLER, in closing: I have no specific information regarding the Coffee-Humbert cancer treatment. Some things are not quite reconcilable with our present knowledge; for instance, cancer may develop in the suprarenal cortex, and cancer is no more frequent in Addison's disease than in other conditions.

In regard to the denervation experiments mentioned by Dr. Isenberger, death may have occurred if the entire experiment was carried out within a short time because of too great shock to the experimental animals. The cortex of the sup-



renal gland has a high choline content but the significance of this fact is not yet known.

Many commercial preparations of suprarenal gland are ineffectual. This has little to do with our own product which is itself very unstable. The active principle of the gland may be lost in the process of desiccation.

### RANDOLPH-MONROE COUNTY MEDICAL SOCIETY

The Randolph-Monroe County Medical Society met at Moberly, April 8, Dr. L. O. Nickell, Moberly, presiding. The secretary, Dr. T. S. Fleming, Moberly, being absent, Dr. C. H. Dixon, Moberly, acted as secretary. The minutes of the last meeting were read and approved.

A communication from Dr. Frank I. Ridge, Kansas City, chairman of the Widow's Fund Committee, asking that the delegate to the May meeting of the State Association in Hannibal be instructed how to represent the Society on that matter, was read.

A motion by Dr. D. A. Barnhart, Huntsville, seconded by Dr. L. E. Huber, Moberly, that the delegate be instructed to use his own judgment, carried.

Dr. G. O. Cuppidge and Dr. Lewis Hunker, of Moberly, were placed on the Honor Roll.

A motion made by Dr. M. R. Noland, seconded by Dr. S. T. Ragan, Moberly, that the Mayor be advised of the need of a member of the medical profession being appointed on the Park Board in order that insanitary conditions might be corrected, carried.

It was moved by Dr. D. A. Barnhart, Huntsville, seconded by Dr. P. C. Davis, Moberly, that the Society endorse the recommendation of the State Board of Health for "Clean-Up Week" from April 29 to May 3, and that the Society cooperate with the authorities to make it a success. The motion carried.

Dr. O. K. Megee, Moberly, read a paper on "Nasal Hemorrhage."

Members present: Drs. L. O. Nickell, O. K. Megee, P. C. Davis, S. T. Ragan, L. E. Huber, M. R. Noland, C. H. Dixon, of Moberly; D. A. Barnhart, Huntsville; M. C. McMurtry and J. F. Flynt, Paris; R. A. Woods, Clark.

C. H. Dixon, M.D., Secretary Pro Tem.

### SALINE COUNTY MEDICAL SOCIETY

The Saline County Medical Society met on January 8, 1930, and elected the following officers for 1930: President, Dr. R. W. Kennedy, Marshall; first vice president, Dr. Fred A. Stahl, Malta Bend; second vice president, Dr. A. E. Gore, Marshall; secretary-treasurer, R. C. Haynes, Marshall.

R. C. HAYNES, M.D., Secretary.

### ST. FRANCOIS-IRON COUNTY MEDICAL SOCIETY

The meeting of the St. Francois-Iron County Medical Society was held April 22, at 8:00 p. m. in the office of Dr. W. J. Bryan, Flat River. Through the courtesy of the Postgraduate Committee of the State Association, Dr. E. E. Kneale, St. Louis; Dr. W. C. Gayler, St. Louis, President-Elect, and Dr. E. J. Goodwin, St. Louis, secretary of the State Association, were present and presented the scientific program.

Dr. J. C. Tincher, formerly of Boonville but now at State Hospital No. 4, Farmington, was elected a member by transfer from Cooper County Medical Society.

Dr. W. C. Gayler gave a splendid talk on "Oxytocics."

Dr. E. E. Kneale gave a very instructive paper on

"Abdominal Symptoms in Children." Both papers were fully discussed.

Dr. E. J. Goodwin talked on "The State Association and Some of Its Accomplishments."

Officers for 1930 were elected as follows: President, Dr. E. F. Hoctor, Farmington (reelected); vice president, Dr. D. E. Smith, Bonne Terre; secretary, Dr. Ralf Hanks, Farmington (reelected); delegate, Dr. W. W. Johnston, Farmington; alternate, Dr. W. J. Bryan, Flat River.

RALF HANKS, M.D., Secretary.

## WOMAN'S AUXILIARY

### OFFICERS 1929-30

President, Mrs. M. P. Ravenel, Columbia.

President-Elect, Mrs. A. W. McAlester, Kansas City.

1st Vice President, Mrs. U. J. Busiek, Springfield.

2nd Vice President, Mrs. James F. Owens, St. Joseph.

3rd Vice President, Mrs. H. C. Brashear, Mexico.

4th Vice President, Mrs. L. G. McCutchen, St. Louis.

Corresponding Secretary, Mrs. C. M. Sneed, Columbia.

Recording Secretary, Mrs. David S. Long, Harrisonville.

Treasurer, Mrs. R. C. Haynes, Marshall.

Auditor, Mrs. C. T. Ryland, Lexington.

Directors (2 years): Mrs. W. W. Ford, Gordonville; Mrs. Harry F. Parker, Warrensburg; Mrs. F. H. Spencer, St. Joseph; Mrs. C. C. Cummings, Joplin; Mrs. Raymond Spivy, St. Louis. (1 year): Mrs. T. S. Fleming, Moberly; Mrs. S. F. Freeman, Springfield; Mrs. Robert McE. Schaffler, Kansas City; Mrs. Hudson Talbott, St. Louis; Mrs. J. J. Gaines, Excelsior Springs.

### JOINT MEETING OF GENTRY, HARRISON, AND WORTH COUNTY AUXILIARIES

The Woman's Auxiliary of the Gentry, Harrison and Worth County Medical Societies met with the members of the Societies at a dinner meeting in Albany, April 25.

Following the dinner a meeting of the Auxiliary was held, the president, Mrs. F. H. Rose, Albany, presiding.

Members present: Mrs. F. H. Rose, president; Mrs. G. W. Whiteley, Mrs. W. S. Campbell, Mrs. W. T. Martin, of Albany; Mrs. J. C. Crockett, Stanberry. Guests: Mrs. H. C. McCoy, Mrs. G. F. Kling and Mrs. Opal Hedges, of Albany.

### CLEANLINESS COUNTS

In the presence of other human beings, how many of us can feel comfortable in a spotted dress or a soiled collar? Asks J. Mace Andress in the January *Hygeia* apropos of a civilized attitude toward cleanliness. What hostess could expect her guests to enjoy the most delicious meal served on a dirty plate or a soiled tablecloth? What applicant for a job can hope for success if his appearance is untidy? What surgeon can expect patients if his finger nails are dirty?

It is possible that cleanliness may not be an index of ability, but civilized persons are suspicious of unclean persons and unclean surroundings. As a group we have learned by experience that the qualities that lead to success are near relations of cleanliness.

# MISCELLANY

## CLOSE-UP OF A DOCTOR ON—NOT AT— THE TABLE

WILLIAM H. BRADDOCK, M.D.

Jarbridge, Nevada

"Now, you'll feel this prick, and after that you'll feel nothing."

Uh-huh. I've used that formula myself, and always had a doubt of it, unless one was meticulous about keeping the needle within the infiltrated area. There, I thought so. Every single sting is perceptible. Poor technique, to tell—ah, misstatements, to the victim. He wonders—like me, right now—if the surgeon knows his business, after all.

That must be the knife—ouch! "Feel that, old man?" A dull jab, then the knife again; skin, superficial fascia, superficial layer of deep fascia—yes, the assistant is pulling something, retracting the muscle, doubtless. Quick work. It hasn't hurt particularly, so far, but it's kind of a general strain; hope he won't be long—would hate to have my nerve give away.

"Now, this may hurt a trifle."

"Go ahead. What is it?"

"Outer layer of the muscle fascia."

Humph! Hasn't begun yet. Why the hell is he so slow about it? Nerve's liable to wear out if he takes too long. Wish a fellow could watch this; could be worked, with a large mirror, and leaving the eyes uncovered. Still, one feels drowsy, and a little dissociated after that morph; just as well lie quiet, and suck that iced gauze that the nurse, or anesthetist, or whatever she is, wipes on the lips. Mighty refreshing. Ugh! That'll be the muscle sheath. Feel nothing more, huh? Wish he'd hurry—would hate to break down and snivel—'Tisn't the pain, exactly, for it doesn't hurt much; must be the suspense, and the cold-bloodedness of it all, waiting for him to hurt you.

That's the real muscle retraction, no mistaking it. Deep layer and peritoneum next, but first, of course, he'll fiddle around, tying off and so forth. Ouch! That one hurt, whatever it was.

Funny how I'm feeling now. No particular pain, but every last fiber of me seems aware that something unusual and alarming is happening to me, and is more than a little worried about it—

"Do you know where I am now?"

"Nope, lost track altogether." He must be in the belly somewhere, but you can't prove it by me. There are no particular conscious sensations, except that they are working somewhere in my appendical area, but I'm tense all over. Not the muscles; they seem relaxed enough. It's a sort of general somatic anxiety, about something desperate and dangerous going on inside me; something like a building with all the burglar and fire alarms going full tilt, all through it, but the bells ringing silently. It's hard to explain; consciously, I know what is going on, in a general sort of way, and also I am aware that my unconsciousness, or subconsciousness, is full of feelings, which are probably unpleasant. Hope they don't burst through into my consciousness; would hate to have my nerve give out and disgrace me.

"Now just a moment. I want to see exactly how things lie in here."

Oh, damn his scientific soul! "Take your time; I'm all right." Try to be a good guinea-pig, since I must be one. Ugh, he must be pestivating around

inside, dragging on things. No pain, but that general sensation of nervous discharges throughout the body is getting stronger and stronger; if it were electricity, I'd prickle all over.

Ow, that hurt! In the umbilicus. Felt exactly as if he were hauling on the falciform ligament, trying to drag my navel into the belly by its roots. But the falciform ligament goes to the liver somewhere doesn't it? There's some hurting in the general appendical region, too.

"Having an attack now?"

"Absolutely—and it hurts." An attack is just exactly what it is, and it would be eased a lot if I could only pass the gas.

"Well, I guess our diagnosis was right."

Oh, damn your diagnosis, and you too! Get along, man, and get done! My nerve is going to give out in a minute—

"If you'd just give me—a little—rest." Hell, if I can't talk straight, better shut up!

"Sure, we'll give you a rest."

Gosh, ain't it a grand and a glorious feeling! Just about here is where that fellow who tried to take out his own appendix must have had to quit. Have a notion I could have gotten down through the peritoneum, if I'd had to, but no further. Think of the technical difficulties of locating the thing, lying on your back like this; especially if it were buried somewhere. There they go again, hauling on the mesentery or something—it hurts! Don't believe anybody could haul on his own like that—hurts too much—leastways, I couldn't—it's hurting more and more, real sensible pain, and I don't believe I can stand much more—

"Ugrrh-rrh!" There, damn it, I knew my nerve would go! I'm feeling queer—sort of floating—things getting distant—this must be what shock feels like, a sort of refuge from too much pain. But my nerve isn't going to give out, thank God, for now I know that I know how to faint, if need be. They're still pulling on that mesentery, but not so hard, and it doesn't seem to be hurting so much; the purse-string, perhaps? Dick said he thought they had dropped the cautery into his belly, when they divided the appendix, and cauterized the stump; nothing like that, so far—though it wouldn't matter now—

Things seem to refocus themselves, rather suddenly. I don't believe I fainted, but I wasn't far from it; just began to, perhaps.

"Now, I'm going to sew up the peritoneum. The anatomists say there are no pain nerves in it. How about that?"

"They—ugh—lie!" Let the damn fool laugh! Visceral, perhaps not, but parietal—ugh—it hurts! Unless he's fooling me about where he is?

"Now we'll take the superficial layer of the muscle sheath. It's supposed to have nerves."

It has, too. I feel every prick on both sides of the infiltrated area. If that area were wider—but, pshaw, a fellow can stand this easily. Ugh, that one hurt! "What was that?"

"The muscle-tie."

Good, he's nearly through. Skin next. Yes, every prick hurts; and then he has to fool with the skin edges—hope he gets 'em right; I was always fussy about 'em. Now the dressings—

"Say, would you mind letting me see the thing?" Someone brings around a little bottle; the thing is in it, but the eyes won't focus right, somehow; best slide back, and let the morph take hold now—it's rather like a dream, till we get back into bed, and relax into a doze.—*California and Western Medicine.*



### THE BAKER MEMORIAL

A unique plan to provide modern hospital treatment of sick persons who are unable to pay the regular fees of the hospital or the physician but who are unwilling to be regarded as "charity" patients has been inaugurated in Boston through the gift of money by philanthropic persons interested in that troublesome question "the high cost of medical care." The plan was discussed in *The New England Journal of Medicine* recently and is presented here for the information of our members. The comment follows:

*The New England Journal of Medicine* has watched with interest the building and opening of The Baker Memorial of the Massachusetts General Hospital (Boston), which is the "department for people of moderate means." Patients in this hospital are cared for by members of the staff of the Massachusetts General Hospital and the Massachusetts Eye and Ear Infirmary. The building was made possible by the generosity of Mrs. Mary Richardson, and others. The aim of the hospital is to put the resources of a great general hospital before "people of moderate means" at cost so that they may benefit from these resources without becoming objects of charity.

In order to bring this about, certain radical departures from usual medical practice in the care of private patients were necessary. All professional charges are included in the patient's hospital bill and the maximum charge for all professional services, no matter how long the treatment nor how serious the case, has been definitely fixed. Fees for laboratory, X-ray, and operating room services are standardized so that each patient entering the hospital may have a clear idea of the approximate cost.

The hospital plans to cooperate in every way with the physicians who wish to send patients to the hospital either for study and diagnosis or for treatment. To this end the trustees have determined that any physician may recommend the admission of a patient to the hospital and have instructed the staff that when the patient is discharged from the hospital his physician shall be given all necessary information concerning his case.

It is generally realized that benefit accrues to patients in any large hospital from the free exchange of opinions of members of the staff. Here is a chance for the development of a system of frequent consultation at very low cost for the class of patient to whom the expense of consultation has been prohibitive in the past. This should be a boon, not only to the patient but to the family physician.

The Baker Memorial has now been in operation for nearly three months and there is every indication that the project is to be a success. It will be of interest to note whether the physicians of New England avail themselves of this opportunity for their patients or whether The Baker Memorial will be filled largely with the private cases of members of the staff.

In 1926, Richard Mühsam reported his experience with 123 perforating gastric and duodenal ulcers seen in the surgical departments of the Rudolf Virchow-Krankenhaus in Berlin. In the *Deutsche medizinische Wochenschrift*, No. 9, 1930, he explains that up until 1926 these perforations were sutured and when necessary a gastro-enterostomy was also performed. Some surgeons still prefer the suture, asserting that the patient is more at ease and the mortality not so high. Von Haberer and others had very satisfactory results with resections and they rate the mortality as 10 to 15 per cent if the operation is performed within the first 12 hours; otherwise, the mortality rate may reach 53.7 per cent. Since Jan. 1, 1928, Mühsam has performed resections on 13 of 29 patients with perforated gastric or duodenal ulcer. One of the thirteen died. All resections were made within the first seven hours. Gastric contents in the abdominal cavity were no handicap for the resections. Four of the ulcers were in the duodenum, nine near the pylorus. Patients ranged from 24 to 46 years in age. Operation by resection was suggested because the tissue surrounding the ulcer was so hard that a narrowing of pylorus or duodenum would have resulted if suture alone had been done and have necessitated a gastro-enterostomy later. Resection was advantageous in removing the main acid-forming part of the stom-

ach thus preventing further trouble for the patient. Operation for the relief of perforated ulcer is much more difficult than for common ulcer as the tissue is edematous and isolation of the gastro-intestinal tract is difficult. Adhesions surrounding the ulcer occur just as they do with the nonperforated ulcer. The duodenum must be so isolated that circulation in the duodenal stump is insured. Failure to do this caused the one death mentioned, a duodenal fistula exhausting the patient twenty-five days after the operation. The method of operation was Billroth II, modification by Polya-Reichel with the addition of Braun's anastomosis. Evacuation of the stomach was excellent with this method. Mühsam says resection is to be preferred in early cases of perforated gastric and duodenal ulcer, especially if gastro-enterostomy has to follow suture; the general condition of the patient must decide the matter. If peritonitis is far advanced and the patient greatly weakened, he suggests the shortest method, the suture.

With the method Billroth II modified by Polya-Reichel with Braun's entero-anastomosis, careful and safe handling of the duodenal stump is necessary. The advantage lies in a minimum of discomfort to the patient, in easy evacuation of the stomach and in the avoidance of the ulcer pepticum jujuni.

### BOOK REVIEWS

**GETTING WELL AND STAYING WELL.** A book for Tuberculous Patients, Public Health Nurses and Doctors. By John Potts, M.D., Fort Worth, Texas. Introduction by J. B. McKnight, M.D., Superintendent and Medical Director, Texas State Tuberculosis Sanatorium. Second edition. St. Louis: The C. V. Mosby Company. 1930. Price \$2.00.

This little book is written primarily for the layman who is afflicted with tuberculosis or who is interested in the care of tuberculous persons. No attempt is made to cover the subject. In a concise and lucid manner, using the language of the patient, the author emphasizes the important points that will greatly help the patient in his battle with the disease. The book reads like a fascinating novel in its entirety and is saturated with optimism. The reviewer heartily recommends this book to all who are in any way concerned with the treatment of tuberculosis. H. I. S.

**THE PRACTICAL MEDICINE SERIES.** Comprising eight volumes on the Year's Progress in Medicine and Surgery. General Medicine. Series 1929. Chicago: The Year Book Publishers. Price \$3.00.

The 1929 Practical Medicine Series on general medicine is fortunate in having as editors Dr. George H. Weaver on infectious diseases; Dr. Lawrason Brown on diseases of the chest (excepting heart); Dr. George Minot and Dr. W. B. Castle on diseases of the blood and blood-making organs, and diseases of the kidney; Dr. William Stroud on diseases of the heart and blood vessels; and Dr. Ralph Brown on diseases of the digestive system and metabolism. Such an array of distinguished men at once recommends the volume.

The articles abstracted are well chosen for presenting the up-to-the-minute progress in medicine: tularemia and undulant fever under infectious diseases; the discussion of "filterable forms of tubercle bacilli" under diseases of the lung; Castle's experiments on the value of normal gastric juice in rela-

tion to pernicious anemia; the sane advice on modern methods of study and treatment of cardiovascular diseases; and the last word on medical treatment of peptic ulcer. The volume is exceedingly attractive to the busy and alert who appreciate true values in books.

W. A. M.

**RESEARCH AND MEDICAL PROGRESS AND OTHER ADDRESSES.** By J. Shelton Horsley, M.D., attending surgeon, St. Elizabeth's Hospital, Richmond, Va. St. Louis: The C. V. Mosby Company. 1929. Price \$2.00.

This is a collection of addresses given before various medical bodies. The original addresses were published in medical journals following their delivery. The addresses selected deal with a variety of subjects in surgery and medicine, as would be expected in a compilation by a man as versatile as Dr. Horsley.

While the book is a copy of the reprints and the addresses have been widely read, the volume is convenient for reference.

E. H. K.

**THE TREATMENT OF VARICOSE VEINS OF THE LOWER EXTREMITIES BY INJECTIONS.** By T. Henry Treves-Barber, M.D., B.Sc. New York: William Wood and Company. 1929. Price \$2.25.

This little text of 115 pages very thoroughly covers the treatment of varicose veins and is worthy of reading by anyone interested in this subject.

The author recognizes the dangers of the treatment in his choice of cases, also the choice of sclerotics for individual cases, and that, while by no means "fool proof," this method of treatment offers the best chance for cure of varicose veins. It is safe and where properly done is economically sound and the results are entirely satisfactory.

J. G. H.

**THE EYE IN GENERAL MEDICINE. The Constitutional Factor in the Causation of Disease with Special Reference to the Treatment of Diseases of the Eye.** By A. Maitland Ramsay, M.D., LL.D., Fellow of Royal Faculty Physicians and Surgeons, Glasgow, etc. Second edition of "Diathesis and Ocular Diseases." New York: William Wood and Company. 1929. Price \$5.00.

This is the second edition, with change of title, of the author's book on "Diathesis and Ocular Diseases," published in 1909. In both editions the general constitutional condition is stressed as a determining factor in the incidence of local infections or degenerations. Diathesis is an inherited or acquired tendency or proclivity to a particular disease and produces in the tissues a soil favorable to infection. Infection is this soil with the addition of bacterial growth. Micro-organisms cause harm only when they find conditions favorable for their growth. They flourish most abundantly in tissues whose natural powers of resistance have been lowered by abnormal metabolism.

The study of bacteriology has tempted the student of the present day to pay too much attention to the germ and too little to the soil on which it falls. Laboratory findings may be just as fallible as clinical inferences. The cause of a disease is not necessarily to be found in the organ manifesting the symptoms, and treatment can be successful only if the underlying cause is discovered and removed.

In children, assimilation plays the predominating role; but in adults, especially in the elderly, excretion is the more important. Perverted metabolism and defective elimination permit the accumulation

of toxins in the blood and are essential factors in the development of the diathetic diseases,—nephritis, diabetes, arteriosclerosis, arthritis, and the consequent local diseases.

The subject of the relation of ocular diseases to general disorders is presented in an unusual way, emphasizing the general clinical symptoms in contrast with the more definite, but no more dependable, laboratory findings. The book should be of real value to the specialist in recognizing the constitutional factors in local disease, and no less to the general practitioner in recognizing that ocular symptoms of general disease are as significant as the extra-ocular symptoms with which he is now more familiar.

R. J. C.

**A TEXTBOOK OF PHYSIOLOGY FOR NURSES.** By William Gay Christian, M.D., Professor of Anatomy, Medical College of Virginia, and Charles C. Haskell, B.A., M.D., Professor of Physiology and Pharmacology, Medical College of Virginia. Second edition. St. Louis: The C. V. Mosby Company. 1929. Price \$2.00.

The work presupposes a considerable knowledge of physics, chemistry and anatomy on the part of the student. Therefore, it would be of more use in the training schools connected with universities than in the ordinary type of hospital.

The definitions and descriptions are so concise that the reviewer questions the ability of the average student to understand them without painstaking elucidation, hence, if the book is to prove satisfactory, it should be used in connection with viva voce instruction. On the other hand, it is refreshing to find a textbook for nurses which is not merely a diluted medical manual.

The book is well printed on highly-calendered paper, in large type and well bound.

G. H. H.

**THE BABY'S FIRST TWO YEARS.** By Richard M. Smith, A.B., M.D., Sc.D., Assistant Professor of Child Hygiene, Harvard Medical School and School of Public Health, etc. With illustrations. New and revised edition. Boston and New York: Houghton Mifflin Company. 1930. Price \$1.75.

The purpose of this volume of 144 pages is "to aid mothers in the care and training of their babies during the first two years." It is in no way directed to the physician or nurse. Clothing, feeding, normal development, and indications of illness make up the major part of the book. A typical day with the young baby is outlined and food recipes given. The book should be valuable to the physician as a time-saver in answering nonmedical questions.

**THE NERVOUS SYSTEM. An Introduction to the Study of.** By E. E. Hewer, D.Sc. (Lond.) Lecturer in Histology and Assistant Lecturer in Physiology at the London (Royal Free Hospital) School of Medicine for Women; and G. M. Sandes, M.B., B.S. (Lond.), M.R.C.S., L.R.C.P., Demonstrator in Anatomy at the above School, Surgical Registrar to the London Lock Hospital for Women and Children, etc. American edition. St. Louis: The C. V. Mosby Company. 1929. Price \$6.50.

This compact handbook of neuro-anatomy embodies in its one hundred and fifty pages the currently-accepted views of the nervous system. It is profusely illustrated with instructive but simple diagrams. Its title would indicate that it is a book for the beginner in the study of neurology but it would seem to have a greater practical value as



an aid to the clinician or, as suggested by Dr. Schwab in his introduction to the American edition, a help to medical students in their review of neuro-anatomy preceding their work in the neurological clinics. It is also useful as a ready reference book.  
H. H. C.

**RECENT ADVANCES IN PULMONARY TUBERCULOSIS.** By L. S. T. Burrell, M.A., M.D. (Cantab), F.R.C.P. (Lond.), Senior Physician to Royal Free Hospital, etc. Pp. 217, with 32 plates and 17 text-figures. Philadelphia: P. Blakiston's Son & Co., 1012 Walnut Street. 1929. Price \$3.50.

The excellence of this little volume, largely a book on treatment, lies in the presentation of the newer, worth while methods after their filtration through the hands of one of England's foremost phthisiologists. Sanocrysin (gold and sodium thiosulphate) is given nine pages, the author summarizing the indications for this at times useful metal from his use of it in sixty cases.

The chapters on artificial pneumothorax serve a good purpose in supplying a practical working knowledge for the application of this valuable treatment, and for the handling of its complications. The information given is intelligible and concise which, incidentally, is quite a common virtue in British medical writing. For so small a book, \$3.50 seems a high price, but of this seventy-five cents is imposed for import tariff on the printed sheets. The wisdom of taxing copyrighted medical books is not apparent.  
L. S.

**RECENT ADVANCES IN ANATOMY.** By H. Woollard, M.D., Elder Professor of Anatomy, University of Adelaide, Late Assistant Professor of Anatomy, University College, London. With 4 colored plates and 73 text-figures. Philadelphia: P. Blakiston's Son & Co. 1927. Price \$3.50.

One really cannot expect professional anatomists of today to discover any new joints, bones, muscles or arteries. Von Baer's Handbook, though hoary with the age of seven decades, will still tell us the essentials of adult human gross anatomy, while Gray, Morris and Piersol will probably need very little revision in the next few years. A century ago Sir Charles Bell, the leader of British anatomists, lamented that the whole subject was "a well-reaped field," and further advances in it were impossible. Then just a little later Langerhans found some "islands" of specialized tissue that have a decided importance to physicians of today. So a book like Woollard's, which shows that our anatomists are still working, studying, thinking and inquiring, is very welcome. The future will undoubtedly present findings as important as that of Langerhans, even though it is hard for those who possess Bell's turn of mind to think of anatomy as other than a static science.

Histologic and embryologic studies make up practically the whole of this volume. The important chapters are those on menstruation, vital stains, the blood cells, the retina, and X-ray anatomy. The sections dealing with cerebrospinal fluid and postural organs could profitably be amplified since they seem to hold more material of practical workaday importance than some of the other data.

Even though the work was written especially for the anatomically-minded, every physician can find in it a great deal that is of interest to him. The author hails from New Zealand; one likes to specu-

late on what his co-worker Hunter could have given to the world if his brilliant career as an anatomist had not been cut short by an early death.

The book is well printed and bound, and the illustrations are good. An author-index would be an acceptable addition.  
C. D. H.

**HEMORRHOIDS.** Their Etiology, Prophylaxis and Treatment by Means of Injections. By Arthur S. Morley, F.R.C.S. Eng., late temporary assistant surgeon to St. Mark's Hospital for Cancer, Fistula, and other diseases of the rectum. Fourth impression, revised and enlarged. Oxford University Press, American Branch, 35 West 32nd Street, New York City. 1929. Price \$2.00.

This little book summarizes the extensive experience of a rectal surgeon of the St. Mark's Hospital and can be recommended as an excellent introduction to the study of proctology.

The author is an ardent advocate of the injection treatment of hemorrhoids. While many of the profession in the United States prefer quinine and urea hydrochloride in place of the carbolic solution used by Morley, the indications, contraindications, and technic are essentially the same. The excellence of his results find their counterpart in those of other physicians who use this method with sufficient frequency to develop skill in its employment. Constant stress is laid upon the importance of thorough rectal examinations. The manual will be of value to any one wishing to improve his work in this often neglected field.  
P. S. L.

**SURGICAL DIAGNOSIS.** By American Authors. Edited by Evarts Ambrose Graham, A.B., M.D. Bixby Professor of Surgery, School of Medicine, Washington University, St. Louis; Surgeon-in-Chief to Barnes and Children's Hospitals, and to Washington University Dispensary, St. Louis. Three volumes, with separate index volume, totaling 2750 pages, containing 1250 illustrations. Philadelphia and London: W. B. Saunders Company. 1930. Price, cloth, \$35.00 a set.

The habit of showering fulsome praise on almost anything with covers on it is so general that one hesitates to tell the truth when a really meritorious work is encountered.

One might begin and end by saying that these books on Surgical Diagnosis are just such as one would expect the distinguished editor to produce. In elaboration, one may say each of the three volumes contains about 900 pages, real pages too, containing as much material as it is possible to present.

To mention only a few of the outstanding features we may instance the diseases of the bones and joints by Abbott, Allison and Hibbs. Here is a wealth of detail that is at once satisfying and astonishing. The second volume treats of gynecological diseases, thyroid diseases, and the digestive tract, as well as a number of lesser subjects equally well treated.

In volume three we find surgical diseases of the thorax, this chapter being written by Graham, diseases of the breast, liver, pancreas, rectum and anus, and other conditions not covered in the other two volumes.

One may safely say that with Babcock for his student days and with Graham's Surgical Diagnosis for his residency period, the pubescent surgeon is in possession of a real library, and no mature surgeon is able to reproduce their contents without a good deal of prompting.  
J. M. B.

# THE JOURNAL

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M. A. BLISS, M.D.

### PRIMARY CARCINOMA OF THE ADRENALS WITH METASTASES IN THE SKIN AND MYOCARDIUM\*

J. R. NAKADA, M.D.

ST. LOUIS

In reviewing the literature one encounters considerable difficulty in finding similar case reports on carcinoma of the adrenals involving the skin and heart by metastasis.

Velpeau<sup>1</sup> was the first to report a case of subcutaneous metastasis in cancer of the breast (1847). Since then several cases have been reported. Moreau, in 1842, and Vidal, in 1853, reported subcutaneous metastases in cancer of the stomach but they did not know that these originated from the primary growth. Millard, in 1859, was the first to call attention to this fact. Many cases of subcutaneous metastases from cancer of the stomach have been reported since then. Subcutaneous metastases have also followed cancer of the pharynx, esophagus, duodenum, rectum, appendix, large intestine, cancer of the mediastinum, bronchi, lungs and pleurae. One case has been reported following cancer of the pancreas and another following cancer of the suprarenals. A few cases have been reported following cancer of the uterus. Mougneau<sup>2</sup> reports metastasis of the skin of mucous epithelial origin.

I wish to place on record an unusual case of primary carcinoma of the cortices of the adrenals, with secondary growths in the skin and myocardium.

#### REPORT OF CASE

L. S., a white man, aged 65, night watchman, first seen July 7, 1929.

*Chief Complaint.*—(1) Sore on abdomen, 1 month duration. (2) "Stomach trouble" and loss of weight during past 6 months.

*Past History.*—No serious illnesses, except heart block 2 years ago. Was a heavy drinker many years ago.

*Family History.*—Father died of old age at 83. Mother died young following childbirth. One sister died at 45 of cancer, one brother died of diabetes, another brother died of "stomach trouble."

*Marital.*—Married 16 years to first wife. Has 5 children by this marriage living and well and one dead of "convulsions." Is married to present wife 25 years. Has 2 sons by this marriage living and well.

*Present Illness.*—About 6 months ago he began to have difficulty in swallowing food, accompanied by nausea and belching. His "throat would be sore" when he swallowed food. Shortly afterwards he began to have vomiting spells 15 to 30 minutes after eating. At first this vomiting occurred only occasionally. The vomitus, according to the patient, was "dark brown and looked like coffee grounds." Lately, he has been vomiting after nearly every meal. Milk, soups and eggs alone agree with him.

During the past 4 to 8 weeks he has been having "hard lumps" form at various places on the skin over the body. These lumps gradually enlarge, break down and become discharging sores. He has one now which broke down 4 weeks ago, has failed to heal and has caused him considerable discomfort. This sore is located in midline on the lower part of the abdomen. He has a lump on the left cheek, one on the back of the head, one near the right scapula and two on the back of the neck. Those on the back of the head and near the right shoulder bother him most, especially when lying on his back. He has been more or less constipated for the past six months and has lost 30 pounds of weight during this time. Six months ago he weighed 160 pounds. No nocturia, no increased frequency, no burning on nor difficulty in micturition. No cough, no pain in chest, no night sweats.

*Physical Examination.*—Fairly well developed, slightly emaciated, old, white man, who walked into the office, apparently in no great discomfort. Temperature 98, pulse 60, weight 135.

*Head and Neck.*—There is a nodular mass about the size of a red bean at the parieto-occipital junction in midline, and another such nodule on the left cheek just under the middle of the zygoma. They seem to be within the thickness of the skin proper and apparently do not involve the subcutaneous tissue. The skin over the nodules is a tawny, reddish-brown. None of the cardinal signs of an acute inflammatory process are present. The eyes show an arcus senilis bilaterally. Pupils are equal and react to light and accommodation. Ears are normal as is the nose externally. There is a mild pharyngitis. Teeth are in very bad condition, the tongue coated, the mucous membrane of the mouth pale. The thyroid is normal. There are two nodules, similar to the ones on the head and cheek but slightly smaller, on the nape of the neck, one on either side of midline. The cervical glands are slightly enlarged, hard and discrete.

*Chest.*—Symmetrical and expansion equal bilaterally. There is a diminution of the subcutaneous

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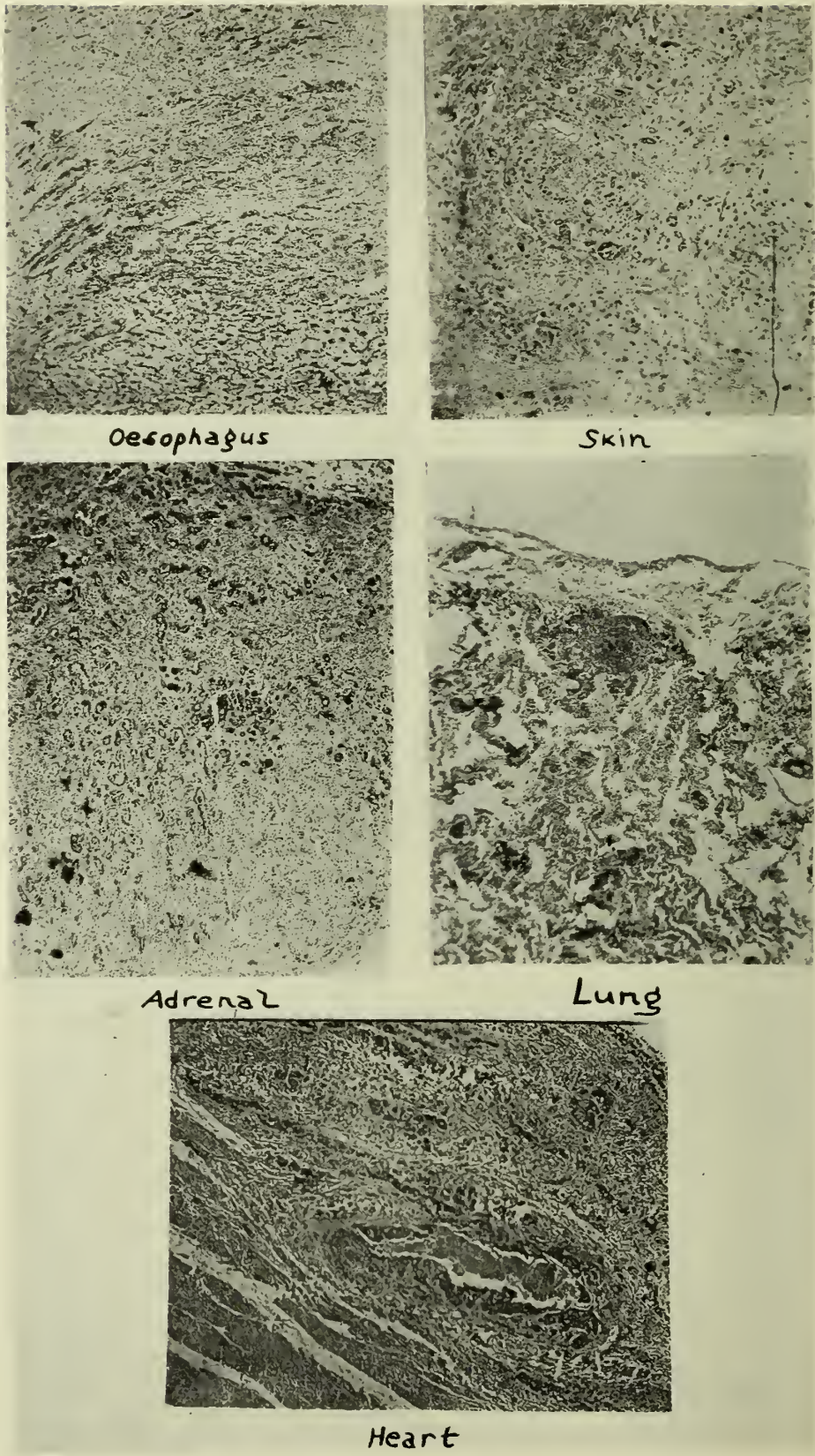


Fig. 1. Low power



tissue and the skin is thin and inelastic. The lungs show no notable changes in the percussion note, tactile or vocal fremitus or in the breath sounds. No rales were heard. The outer cardiac dullness extends 1.5 cm. outside midclavicular line in the 5th left intercostal space. No enlargement to the right was made out. The sounds were clear, rhythm irregular, rate 60, no murmurs. Blood pressure 130/90.

**Abdomen.**—Flat with a suggestion of slight distension in the upper half. There is a small hard mass, about the size of a small plum palpable, in the epigastrium which appears to be fixed to the lower part of the liver or stomach. The liver extends 1 cm. below the right costal margin in midclavicular line. The spleen is not palpable. There is tenderness over the entire upper half of the abdomen, most marked in the epigastrium.

Just above the symphysis pubis is a large round crateriform ulcer, about the size of a silver dollar. The edges are elevated about  $\frac{1}{4}$  inch above the surface of the skin and are rolled over. The crater is filled with granulation tissue and a thin yellowish discharge is seen exuding. The edges bleed readily on touching. There is induration and fixation to the tissues below for about an inch wide around its base.

**Back.**—There is a nodule, slightly larger than a red bean, medial to the junction of the middle and lower two-thirds of the right scapula. The skin over it is a tawny, reddish-brown.

The epitrochlear, cervical, inguinal and popliteal lymph glands are slightly enlarged, hard and discrete. The prostate is small and no nodules or abnormalities are palpable. The extremities are normal except for arteriosclerosis. Reflexes normal.

**Impression.**—(1) Carcinoma of esophagus or stomach with skin metastases. (2) Chronic myocardial disease with hypertrophy of heart. (3) Bradycardia. (4) General arteriosclerosis. (5) Heart block (?), extrasystoles (?). (6) Dental caries with gingivitis. (7) Sporotrichosis(?), coccidiosis(?).

**Laboratory Findings.**—The Wassermann reaction was negative. The blood count showed hemoglobin (Tallquist) 65 per cent, erythrocytes, 3,560,000, leukocytes 5600, color index, 0.945. The differential was normal except that some of the neutrophils were unusually large, stained poorly and were vacuolated. The urine was negative for albumin and sugar but showed a few finely granular casts.

#### PROGRESS

On July 20, 1929, the patient was seen by Dr. Vandover whose impression was that the condition on the skin was a malignancy or blastomycosis. Aug. 3, a nodule was removed from right scapular region for pathological examination and on Aug. 11 a nodule was removed from parieto-occipital region for pathological examination. Aug. 15, consultation with Dr. Joseph Grindon who commented: "The description of the nodes, tumors and ulcer in the body of this report are so exact as to require no further amplification. My conclusions as to the diagnosis were that, on clinical grounds, syphilis, leprosy, tuberculosis, sporotrichosis, blastomycosis, actinomycosis and the blastoma group could be excluded, leaving as possibilities ameba cutis, coccidiosis and a possible malignancy."

Dr. Gorham, who was present at the time, suggested that the possibility of an agranulocytosis should be ruled out by further checks of the leukocyte count. The leukocyte count was 5000 on Aug.

15, and 5400 on Aug. 20. Dr. Glick examined the patient's throat on Aug. 24 and could find no lesion as far down as the arytenoids. From July 7 to Oct. 20 the patient became progressively worse with the exception of brief intermittent periods of fair health and expired at 5:50 p. m. Oct. 20. An autopsy was made immediately.

Several pathologists had examined the biopsy specimens and variable opinions were expressed as follows: multiple epitheliomata, epithelioma of skin, molluscum contagiosum, basal cell carcinoma, basal cell carcinoma of skin and sarcosporidiosis, metastatic carcinoma of skin of gastro-intestinal origin, metastatic carcinoma of adrenals or liver.

#### AUTOPSY REPORT

As the complete report is too lengthy only the important features are noted. The esophagus revealed a thickening in its lower part which involved the entire circumference so that an obstruction was apparent. Microscopically, it presents the picture of tumor metastasis. The greatest amount of tumor is found in the outer wall and peri-esophageal tissues. From this, converging lines of cells are invading all coats and are seen ulcerating the surface. The cells are, for the most part, large vesicular cells, some unusually rich in chromatin and containing many mitotic figures. The tissue spaces and lymphatics are distended by tumor. Marked fibrosis of the walls and some leukocytic infiltration are present.

The heart did not show any tumor on gross examination but microscopically showed areas of tumor in the myocardium, not unlike that found in the esophagus.

The lungs did not show any tumor macroscopically but microscopically showed a few scattered areas of tumor similar to that in the esophagus.

The liver margins were sharp and the color was unchanged except for numerous nodules that projected from the surface. These nodules were grayish-white and the larger ones were umbilicated. On section, they were discrete and sharply demarcated. They were firm except for the hemorrhagic and softened centers of the larger ones. Microscopically, there were nodules of metastatic carcinoma in which was considerable fibrosis. The centers of the masses were marked by necrosis. Beyond the tumor was some fibrosis and marked pressure atrophy of the liver cords. The sinusoids in the immediate liver substance were filled with leukocytes. The tumor cells here were in nests and clumps.

The adrenal glands were between two and three times their normal size. Their positions were unchanged except for their extension in enlarging. On section the usual degeneration of medulla could not be made out but this area was pale and solid. Microscopically, the left adrenal showed what appeared to be a primary carcinoma arising from the cords of the cortex. Tracing down the zona fasciculata to about its junction with the zona reticularis there seems to be a distinct transition in cellular type from the unusually pale lipid cells to hyperchromatic, mitotic and invasive cells. The cord-like arrangement is entirely lost in the invasiveness of the tumor. Considerable fibrosis and little degeneration of the gland seems unusual.

The lymph glands in the inguinal region were somewhat enlarged and quite firm. In the mesenteric and pancreatic regions a chain of hard and firm glands could be found extending up to the junction of the esophagus and cardiac portion of the stomach. Microscopically, the mesenteric glands showed a complete replacement of the normal architectural



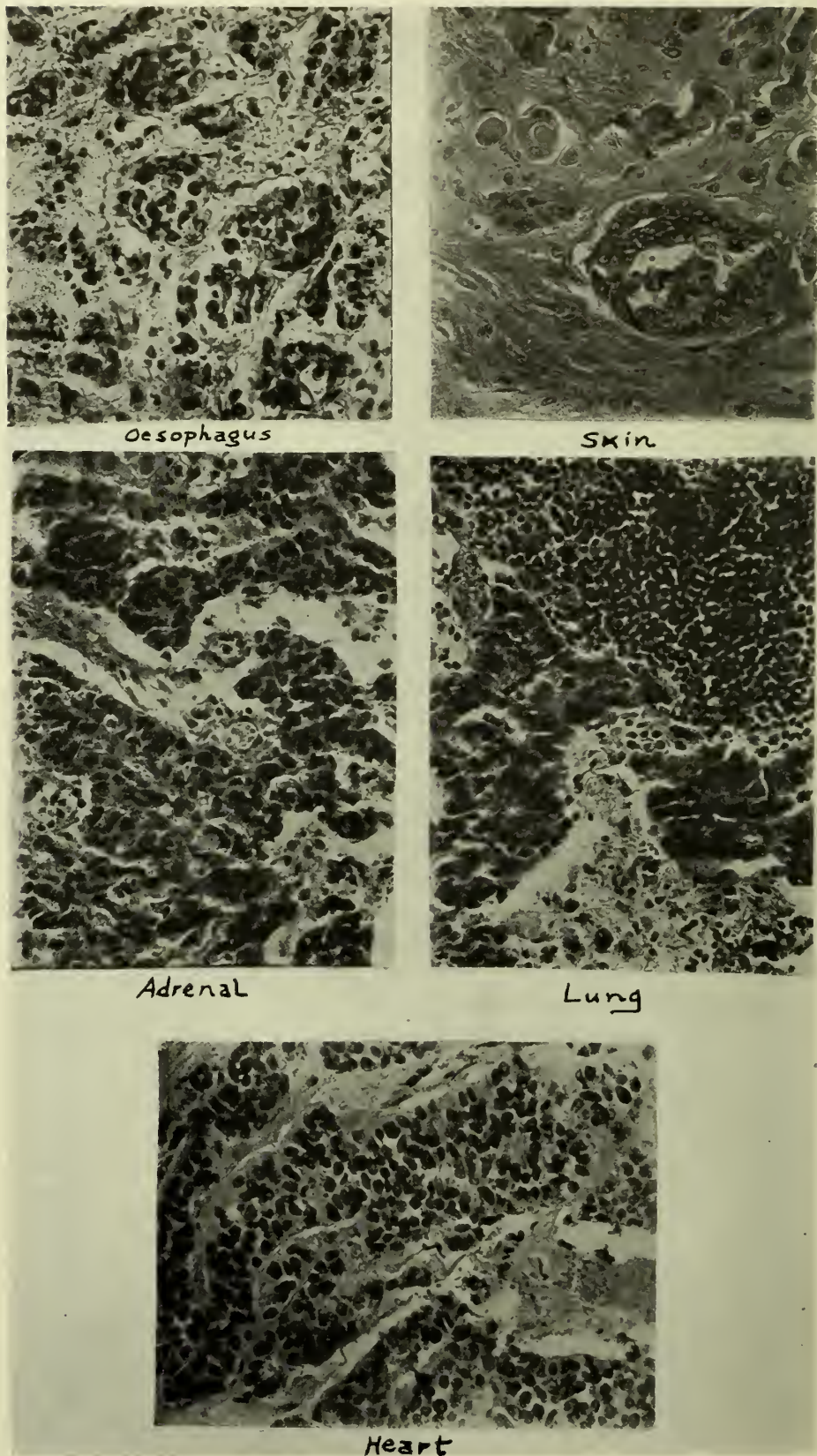


Fig. 2. High power

structure by tumor. The tumor mass is degenerating centrally but inciting a fibrous tissue reaction peripherally.

Some of the descriptions of the biopsy specimens removed from the scalp and back were as follows:

1. Sections of skin show superficial necrosis and ulceration. The cutis and subcutis are diffusely infiltrated with tumor consisting of dense fibrous tissue in which there are many narrow irregular spaces. They are partly lined, partly filled with atypical epithelial cells. The nodule from the scalp has a similar structure. All the spaces are completely filled with atypical epithelium. Large parts of the tumor are necrotic.

2. The tissue removed from the skin for biopsy shows a tumor mass chiefly in the subcutaneous tissue but which is ulcerating the surface epithelium. The epithelium at the margins of the ulcerations is thickened and contains broadened papillae but is otherwise normal. The tumor mass seems to be localized and consists of a great number of large clear endothelial-like cells and a smaller number of small hyperchromatic cells. Mitotic figures are not numerous. In places, some of the cells appear to show amitotic division, making giant cells. The sebaceous glands are hyperplastic but not invasive. The surrounding tissue shows slight degeneration. Microscopically, the tumor did not seem particularly invasive.

The pathologists, to whom the author is indebted for their interest in attempting to arrive at a definite diagnosis from the biopsy specimens are, Drs. John R. Roberts, W. D. Collier, Howard H. Bell, Ralph L. Thompson, Louis Rassieur and D. L. Harris, of St. Louis; Drs. L. Hektoen and J. J. Moore, of Chicago, and Dr. W. Ophuls, of San Francisco. To these men and to those clinicians who also took such a deep interest in the case the author is sincerely grateful.

#### DISCUSSION

The interesting features of this case are the difficulties encountered in making an early and correct clinical diagnosis. This failure was probably due to the lack of hair, dermal and somatic changes, and insufficient evidence of a cancer of the adrenals. The patient did not have abdominal pains, pigmentary changes nor impairment of vision or hearing which so often accompany this condition. The symptoms present could be associated either with a malignancy of the gastro-intestinal tract or any growth of the adrenals.

The question arises as to how we are to account for the fact that the lungs were so little involved while the skin and myocardium were so greatly involved by the metastases. To answer this question one can only theorize on the possible explanations. One explanation would be, a patent foramen ovale, as suggested by one pathologist; but a reexamination of the heart failed to reveal such a condition. Another possibility is that many metastatic emboli passed directly through the lung, either due to the capillary resilience or to the fact that the emboli were so minute.

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### SURGERY OF THE STOMACH\*

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There is no department of surgery that has undergone so great an evolution within the past ten years as surgery of the stomach. Our ideas and methods have finally taken definite form and out of multitudinous suggestions and experiments a simple rational system has been evolved by those of us who confront these problems at the bedside and the operating table. The men in general and special practice and the internists, however (if I may judge by the questions asked me), still have nebulous ideas as to what can and should be done, and what it is possible to do in such serious conditions as gastric ulcer, hemorrhage and carcinoma.

To Rydygier is given the credit of having performed the first successful operation for gastric ulcer when he resected an ulcer from the posterior wall in 1881.

Doyen, in 1893, substituted gastrojejunostomy for excision. This was soon adopted by surgeons generally as the operation of choice. Soon, however, grave doubt developed in the minds of medical men because many patients were not relieved. The mortality in the early cases was high. Due to faulty technic some patients were not cured. We heard much of the "vicious circle" and persistent vomiting. Then the posterior "no loop" operation became the one of choice in place of anterior gastroenterostomy and in skilled hands the mortality fell to 5 per cent or even less. Complications were rare. The operation properly performed became the most satisfactory in all surgery.

It is my belief that every case of acute gastric or duodenal ulcer should be first treated medically; if not relieved or if relapses occur, then surgery should be undertaken. Paterson, of London, states that 64 per cent are not cured by medical treatment and diet. So large a number developed relapses, hemorrhages or gastric dyspepsia that not more than 25 per cent in this series could be said to have remained permanently well. The percentage in private practice is possibly 10 per cent higher. This leaves two-thirds of those afflicted with ulcer as chronic invalids, if they survive.

\* Read before the Jackson County Medical Society, November 26, 1929.



What is the prospect of cure by operation? From the surgical literature a summary of the results recorded of traced cases from three of our well-known clinics, embodied together, gives approximately by surgery, (1) cured of gastric trouble, 82 per cent; (2) fairly good results (occasional dyspepsia), 11 per cent; (3) unsatisfactory (died subsequently or relapsed), 9 per cent.

It is stated that the mortality of the medically-treated gastric and duodenal ulcers is 20 per cent; 50 per cent of the "cures" relapse with not more than 25 per cent permanently cured. On the other hand, surgery offers a prospect of more than 80 per cent of cures, with great relief in another 10 per cent, and at an operative risk of not more than 5 per cent. (In my own cases it is nearer 3 per cent.) What then is the operation of choice? From the inception of gastric surgery it was thought that the ulcer must be cut out or destroyed. Rodman went so far as to advocate the "excision of the ulcer-bearing area." This was soon found to be ill-advised and unnecessary. The mortality was high and ulceration was found to occur even after excision. The Mayo Clinic took the stand that excision or cauterization of the ulcer was necessary because of the danger of malignancy being engrafted on a simple ulcer. They claimed that every case of ulcer was a potential cancer; that 71 per cent of gastric cancers were engrafted on an ulcer. This statement was soon challenged by many surgeons of wide experience. Bevan and his associates believe that not more than 23 per cent of ulcers become malignant. In this opinion we also concur with the majority of American surgeons.

If excision is not necessary, why does gastro-enterostomy so greatly benefit these cases? Drainage of a stomach with an obstructed pylorus, it is easy to understand, diverts the food current and allows the ulcer to heal. It relieves the cardiospasm, with its intensive secretion, and lowers the acidity of the stomach at least 30 per cent. The operation is really physiologic. With this change it matters little whether the pylorus is patulous or not, or whether the gastric contents pass over the ulcer, for it is nonirritating. Recent fluoroscopic studies have shown that as a matter of fact the food current passes out both at the gastro-enterostomy stoma and the pylorus. Also, that cases with the ulcer located on the lesser curvature or on the cardia do equally well. In my experience, cases without pyloric obstruction have made as good recovery as the others. In passing, you may recall, that a few years ago several methods were suggested and used to unfold and obstruct the pylorus arti-

ficially. We now know that this is unnecessary and "that which is unnecessary is bad surgery." This is a surgical axiom.

When then should surgery interfere in cases of chronic gastric and duodenal ulcer? The diagnosis should be carefully made by X-ray, gastric analysis and physical examination. Medical treatment and diet should be continued for six weeks, with possibly another period of six weeks to three months under observation. If the symptoms still remain, with periods of more or less severe exacerbation, then operation should be undertaken. A posterior short-loop gastro-enterostomy is the operation of choice. The ulcer must be demonstrated or definite pathology with or without obstruction must be found. Failure to find it often means a reflex pylorospasm or cardiospasm from an old diseased appendix or gall-bladder. A gastro-enterostomy in such patients will be of no benefit and will usually exaggerate the symptoms.

There are several complications of gastric and duodenal ulcers that must be especially considered. The first is hemorrhage. Occasionally, the vomiting of blood or the passage of blood by the bowel is the first definite symptom presenting. Immediate operation in these cases should never be undertaken. The best surgeons found that operation during this period was futile. Von Mikulicz operated on four patients during the bleeding and they all died. This has also been the unhappy experience of others. Theoretically it would seem that in case of hemorrhage the proper surgical procedure would be to cut down and tie the bleeding point. Unfortunately this can almost never be done. The hemorrhage may come from the mucosa or it may be general oozing. No one point or points of bleeding can be found and the patient succumbs while a search is being made. Stitch sutures under the vessels leading to the ulcer have been tried without success. The cautery in active hemorrhage is useless.

What then should be our procedure? During active bleeding, absolute rest, morphine, coagulants, such as normal horse serum or fibrin-laden serum; nothing by mouth. When the bleeding has subsided, medical treatment may be undertaken if the hemorrhage was not severe. If it is of a serious character or shows signs of recurring, then a gastro-enterostomy may be undertaken,—but during a quiet period when the bleeding has ceased. Blood transfusion to bring the patient up to a proper condition for operation is of great value. One of the great delights of the surgeon is to see these cases get well and remain well.

Excision of the ulcer or cauterization is not necessary for we do not believe that all ulcers are potential cancers. In fact, every surgeon of wide experience in gastric surgery has seen many cases that were in appearance carcinomatous rapidly disappear after gastro-enterostomy.

The same method of treatment applies to duodenal as to gastric ulcer, but there is less reason to excise as carcinoma does not occur in the duodenum. Excision in this location is often impossible, due to a slow-leaking ulcer with much lymph infiltration and adhesions. The Finney operation is not as satisfactory as gastro-enterostomy. The mortality is higher and duodenal fistula not infrequent. Recurrent ulceration along the line of incision often occurs. It is a wise procedure to infold the serosa over the ulcer by several sutures and reinforce this with omentum. This especially applies to large active ulcers.

When a posterior short-loop operation is performed the jejunum is selected at a point about eight to ten inches from its emergence through the mesentery for anastomosis with the stomach. At times this point is somewhat difficult to find owing to anatomical variations or dense adhesions. In that case a near lying loop of the jejunum is used, usually with perfect success. Rubber-covered clamps are used. The first or serous suture is a continuous silk or Pagenstecher hemp on a small cambric non-cutting sewing needle; the mucous or hemostatic suture is also a continuous one of twenty-day, No. 1, chromic catgut fused to a fine sewing needle. I have never felt safe in making both suture layers of catgut. Their too rapid absorption takes place at times with the complete breaking down of gastro-intestinal union.

Perforation of a gastric or duodenal ulcer is one of the greatest dangers. There are cases in which perforation is the first and only symptom of ulcer. This of course occurs in acute ulcers and more frequently in duodenal than in gastric. More often the perforation occurs in a chronic ulcer that had presumably responded successfully to medical treatment. Any one who has seen even one or two of these cases cannot fail to make a correct diagnosis. The onset is sudden and the pain most severe. The abdomen has a hard board-like feel that nothing but the acute perforation of a viscus can give. The pulse is slow, the temperature normal but at times slightly subnormal. Vomiting does not occur often. Of course operation must be undertaken at the earliest possible moment. The chances of recovery are directly

in proportion to the length of time that has elapsed between perforation and operation. Dr. John Deaver told me in a personal discussion of this subject that operation within the first twelve hours gives him a mortality of from 10 per cent to 15 per cent; after twenty-four hours about 25 per cent and after forty-eight hours over 50 per cent. He does, however, a primary gastro-enterostomy and closes the perforation at the time he opens the abdomen. This procedure is also invariably followed by Paterson, of London. To my mind, it greatly increases the mortality. Monahan does a primary gastro-enterostomy only if he has restricted or narrowed the pylorus in closing the perforation. This has been my own practice and my statistics prove its wisdom. I now have a record of fifteen cases of perforation with only three deaths, one from peritonitis (operation forty-eight hours after perforation), one on the fourth day when general peritonitis was detected, and one from edema of the lungs (heart failure in a patient seventy-six years old). I will add, however, that all but four cases were operated on within the first twelve hours.

In my cases there are eleven duodenal and four gastric perforations, the youngest nineteen years of age, the oldest seventy-six. No effort was made to do a primary gastro-enterostomy. The perforation was simply closed with catgut with a Lembert infolding suture of silk or Pagenstecher hemp. In only two cases was a gastro-enterostomy necessary,—with one recent case that is still having symptoms and will probably require an enterostomy. In this case the ulcer was large, indurated, and in the closure of the perforation the pylorus was materially narrowed. In all my cases a portion of the omentum was sutured over the suture line, thus reinforcing it.

I am at a loss to understand why so many of these perforated cases remain well after operation and no gastro-enterostomy. My experience is not unique in this; Monahan reports only 23 per cent of recurrences which demanded gastro-enterostomy later. Pyloric obstruction of benign origin has been especially satisfactory. These have always been the cases par excellence for gastro-enterostomy.

The mortality in the congenital obstruction of infants is unusually high with gastro-enterostomy. In the early days the mortality from these operations at the General and the Children's hospitals was so great that surgery was rarely undertaken on these little starved pa-



tients. Then came that splendid operation of Rammstedt's whereby the thickened muscular sclerotic tissue and serosa were only cut through down to the mucosa which was not penetrated. This divided the constricting ring. It could be done on the feeble little patients in a few moments without shock. Their recovery was marvelous.

Pyloric obstruction may occur from adhesions and gallbladder disease. In these cases gastro-enterostomy is just as efficient as where intrinsic narrowing of the pylorus is present.

Gastrectomy, I believe, should be reserved only for cases of gastric tumor, benign or malignant. Only 25 per cent of the cases of carcinoma of the stomach are operable (Bevan); the mortality of excision is 25 per cent and not more than one-fourth of those surviving live three years or more. From this it is evident that gastrectomy for malignant disease is not very encouraging. On the other hand, when we consider that all cases are doomed a prolongation of life for even three years in the small 25 per cent that survive is worth while. The most satisfactory operation is the Polya-Balfour. This consists of excision of the pyloric end of the stomach with an anterior lateral anastomosis between the jejunum and the remaining stomach pouch. At times an entero-anastomosis is necessary to drain the blind duodenal end. My experience with gastrectomy has not been very encouraging. Most of the cases had recurrences and died in from six months to two years. One patient, without glandular involvement, has a large cauliflower-like growth almost completely obstructing the pylorus. A wide resection was done. The patient was alive and well when lost sight of four and one-half years later. This is the longest period I have been able to trace any of my cases. There are unquestioned recoveries with many years of immunity. Return of the growth, however, has occurred in twelve years and in one case even in fifteen years.

The cancer problem is always with us. While it is true, with our more careful methods of diagnosis and the splendid help of the X-ray, more cases are discovered, yet the disease is really on the increase. In my opinion, it will not be solved by surgery. I believe it is an infection and that some day its true nature and cause will be discovered and then this extensive and destructive form of surgery will be eliminated. Until that time, excision is the only method that gives us any hope of even temporary success.

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## THE SCHILLING BLOOD PICTURE\*

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The total white blood count and its differential determination has been a more or less important factor as an aid to diagnosis in gynecology as well as in the other branches of medical science, since the period of Ehrlich. It was Ehrlich who demonstrated the tinctorial affinities of blood cells for aniline colors, and with Naegeli discussed the probability of blood cells originating in two systems, the myelogenous and the lymphatic, instead of one stem as has previously been believed by the earlier authorities.

In 1912 Victor Schilling set forth some new and interesting theories of the white blood cells and the significance of the individual cells in disease. He has given the differential count a new significance in that it takes on much greater value as an aid in diagnosis and prognosis. It should be mentioned here that Schilling makes no claim that his method of blood determination should alone be used in making a diagnosis but is distinctly only an important aid in arriving at the proper conclusion. I shall not enter into the description of a technic of staining as advised by Schilling other than to say that the Giemsa stain should be used to obtain the best results.

The Schilling differential blood picture represents a morphological dissection of the elements that heretofore have been regarded as one group. In other words, we divide the neutrophils in this new count into four classes, namely, myelocytes, juveniles, stab or staff, and segmented forms. In addition to this, we have the same type of cells that we used in the old Ehrlich method, namely, basophils, eosinophils, lymphocytes, and monocytes. The monocytes in the Schilling group represent the two classes of the Ehrlich type, namely, the mononuclears and the transitionals. According to Schilling, the monocytes originate from a distinct stem and do not represent crosses between myelocytes and lymphatic elements. In other words, they come from the reticulo-endothelial structures of the body. This fact must be borne in mind for the reason that to the monocytes are ascribed a significance in prognosis not hitherto reckoned with.

In reading a report of the blood examination we arrange the cells of the numerical relative count in straight lines as follows:

\* Read before the St. Louis Gynecological Society, February 14, 1930.

Table 1. Hemogram of Normal Blood Specimen

Clinical diagnosis	Leukocytes	Basophiles	Eosinophiles	Myelocytes	Juveniles	"Stabs" or Red Nuclear	Segment	Lymphocytes	Monocytes	Remarks
Date				Neutrophiles						
Day of sickness										
	6800	1	3	0	4	63		23	6	

This is known as a hemogram. We now draw a line between the segments and the stabs. If there is an increase in the cells arranged on the left side of this line we call it a nuclear shift to the left. If there is a shift of cells on the right side of the line we call it a right shift.

It is believed that the shifting of the figures from the right to the left and from the left to the right can be used in a certain sense as a diagnostic and prognostic factor in infection.

To return to the neutrophils, we know that in the development of the granulocytes the parent cell is a giant bone marrow cell or megakaryocyte. This is an undifferentiated form. Next, the first phase of evolution of this cell into the adult is a change into the myeloblast, then to the promyelocyte and then on down through juveniles, stabs to segments. Myelocytes, juveniles and stabs represent undeveloped granulocytes, and segments represent fully developed or adult forms.

It is Schilling's belief that when an infection originates in the blood its first effect through bacterial presence or toxic influences emanating from bacteria is to paralyze the bone marrow function so that the development from the adolescent stab to the adult segment is interrupted. The first effect in infection, therefore, is this degenerative toxic influence on the bone marrow, causing an increase in stabs over the normal figure, which is 4 per cent. This, consequently, would be a shift to the left. If the infection is short-lived the toxic influence is removed, the stabs decrease and the blood picture becomes normal. If, however, the infection goes on, the bone marrow is stimulated and forms more granulocytes than the organism can take care of in the bone marrow. Then these immature forms appear in the peripheral blood. In other words, we now have—in addition to the increase in stabs—the appearance of juvenile cells, the type of cells that were once known as the metamyelocyte. This, consequently, is a still further shift to the left and is called a regenerative infectious blood picture. At the same time we must take into account one or two changes in the blood picture which are not manifest, namely, a dis-

appearance of eosinophils, a decrease of lymphocytes and usually a decrease in monocytes. If the infection proceeds still further to the detriment of the patient, we may now have the very premature cell, the myelocyte in the peripheral blood. We therefore have a picture of severe infection as follows: no eosinophils, one or two myelocytes, a few juveniles, an increase in stabs and a lowering in the number of segments, with a decrease of lymphocytes and a very marked depression in the number of monocytes. It will be noted that the total figure of neutrophils is above the normal figure of 63. It may be anywhere from 70 to 99. With a blood picture of this kind continuing, there is every likelihood that a fatal outcome will take place.

With an improvement in the case there would be a decrease in the number of neutrophils, a disappearance of the myelocytes and juveniles, a reappearance of eosinophils and a marked increase in monocytes.

It must be remembered that the total count during the time that the hemograms are taken must be considered. Alone, it has very little significance, but with the cells above described the total quantity of white cells has some significance. A marked increase usually goes with infection. A great decrease is usually seen with a flooding of the peripheral blood by these immature neutrophils just described. There may be also a continual rise in the total quantity coincident with the increasing gravity of the differential picture. We must not ascribe any great significance to the total count alone.

In gynecological cases the Schilling method has been found to be of great value. *First*, in spotting pus infections. In the presence of an acute purulent process in the appendix or the tubes or adnexa, one will get an increase in the total count and a shift to the left. It should be noted here that the count will not differentiate an acute salpingitis from an acute appendicitis; it will show practically the same blood picture. If the pus infection continues or, in surgical words, if it is operable, the shift increases to the left. However, if, after the



Table 2. Hemograms of Case 1

	Leukocytes	Basophiles	Eosinophiles	Myelocytes	Juvenile	"Stabs" or Red Nuclear	Segment	Lymphocytes	Monocytes	Remarks
First seen 3rd day of disease, 3 hours after delivery.	2800	0	0	1	18	69	3	4	5	Severe sepsis.
Fourth day. High temperature. Seems better.	12,925	0	0	(1	21	67	9)	2	0	Monocytes lower. Prognosis bad.
					98%					
Fifth day. Seems the same.	35,550	0	0	2½	25½	31½	35	5½		Prognosis the same.
Sixth day. Clinically worse. Death.	51,400	0	0	2	21½	32	37	6½		Prognosis bad.

first appearance of the shift, the total count is sustained and the shift begins to recede to the right, and the lymphocytes increase in quantity, there is every probability that sufficient resistance has taken place to throw a protecting wall around such an infectious process and operation must be left to the surgical judgment of the attending physician. *Second*, in the differential diagnosis of ectopic pregnancies. *Third*, in the diagnosis of cystic conditions, with or without bleeding.

If, following an operation, the shift moves to the left and keeps on moving, with a disappearance of eosinophils and subsequently of lymphocytes and monocytes, we know that we are dealing with a severe sepsis. On the other hand, the patient may show a clinical picture of beginning sepsis but there is a shift to the right. Then the surgeon may have a feeling of reassurance in spite of a rising total count and rise in temperature.

The record in Table 2 illustrates the figures one will get in a severe infection that is destined to end fatally. (Case 1.) The figures comprise an observation covering a period of five days. There are four blood counts. This patient had pneumonia. She was six months pregnant. A premature labor occurred. A count was taken a few hours after the delivery. This time the patient had a marked elevation in temperature. Patient died shortly after the last count was made.

The hemograms in Table 3 show the picture of a criminally induced abortion. We here are able to make a favorable prognosis by hemogram 36 hours before the patient showed clinical improvement. The patient entered the hospital in a critical condition with a temperature of 104.3, pulse 140. She was in a stupor. The uterus contained large pieces of placenta. Odor strong. The blood culture was negative.

The first hemogram (First day) shows an

Table 3. Hemograms of Case 2

	Leukocytes	Basophiles	Eosinophiles	Myelocytes	Juvenile	"Stabs" or Red Nuclear	Segment	Lymphocytes	Monocytes	Remarks.
First day. Very ill.	22,000	0	0	(1	13	43	42)	1	0	Severe infection.
					99%					
Second day. Sick.	20,000	0	0	0	11	46	36	1	0	No great change.
Third day. Sick.	19,000	0	0	0	2	43	47	5	3	Marked right shift. Increase in monocytes. Prognosis good.
Fourth day. Clinically better.	16,000	0	1	0	0	40	43	11	5	Same as above.
Tenth day. Still better.	17,500	0	3	0	1	16	55	16	9	Improved.

increased total count with a marked shift to the left, and absence of eosinophils and monocytes, a typical picture of severe infection. The second hemogram shows a slight decrease in total cells with no great change in the differential. The patient is still very sick. Under the old count we would say that she has 99 per cent polymorphonuclears. On the third day the patient still has 92 per cent polymorphonuclears but there is a definite shift to the right with an increase in monocytes, giving us a favorable prognosis although the patient is unimproved clinically. Thereafter the shift continued to the right and clinically the patient improved.

This brief outline indicates in a general way the striking use of the Schilling blood picture in clinical observation with individual patients.

730 Missouri Building.

## TUMORS OF THE LARYNX\*

W. G. PATTON, M.D.

ST. LOUIS

In presenting this paper, I do so with the hope that it might inspire and create a deeper interest among the otolaryngologists as well as the general practitioners, in making a more thorough and careful laryngeal examination of all patients coming under their observation. Only by thoroughly familiarizing oneself with the normal appearance of the larynx can one hope to recognize and diagnose the abnormal readily and intelligently.

Benign tumors are innocent or homologous growths of which the tissue and structure correspond to the tissue from which they originate, or to part of it. They are comparatively rare. Mackenzie took eight years to collect his first hundred cases and individual experience is still more slowly accumulated nowadays. Papillomata and fibromata are most frequently met with, but the papilloma is the most common of all benign growths in the larynx.

The cause of benign growths in the larynx is uncertain and little is known on the subject except that undoubtedly sex and age are two important etiological factors. At all ages the number of males affected preponderates in the proportion of 3 to 1. There is a steady increase in the number of cases up to the age of 40, followed by a decline. The ages between 30 and 40 are said to be the most susceptible. Chronic laryngeal catarrh, overuse of the voice, chronic nasal and pharyngeal affections, appear to have no influence in the production of these growths.

The vocal cords themselves are specially

liable to be affected while the arytenoid region, so vulnerable in tuberculosis, enjoys great immunity.

Symptoms depend on the size, situation and attachment of the growth. Some patients are quite unconscious of the presence of a laryngeal neoplasm which may be discovered by accident. Discomfort in the larynx, effort in speaking followed by fatigue and hoarseness, are chiefly complained of when the neoplasm is situated on a cord or on the margin of the rima glottidis. Dysphonia may occur erratically as the growth may only at times interfere with the action of the cords. The voice may be muffled or gruff, or the patient may speak in a high and monotonous key. There may be temporary or permanent aphonia or whispering. Sometimes a growth does not impair the speaking voice but entirely destroys several notes in singing. A small sessile growth may interfere with vocalization more than a large pedunculated one, particularly if it is situated on the free margin of the cord and near the anterior commissure.

Dyspnea is met with in multiple papillomata and in large growths, like lipomata. Attacks of suffocation occur, more frequently towards evening or during the night. Inspiration is as a rule much more difficult than expiration and thus the character of the respiration has a certain diagnostic value as regards the seat of the growth. When inspiration is noisy and stridulous and expiration comparatively easy the growth is probably above the vocal cords, and vice versa. Stridor is more marked on exertion and during sleep. It is generally an indication for operation. Papilloma may cause complete obstruction of the larynx, chiefly in children; and an adult may neglect the symptoms caused by some innocent tumor until it suddenly occludes the glottis more or less completely.

Cough is rare but is sometimes croupy or paroxysmal. Dysphagia is still more rare. An attack of laryngitis is more severe and prolonged than in a healthy larynx. Most authors say there is no pain or general disturbance of health. However, my experience has been that there frequently is a great deal of disturbance in general health and the patient often becomes nervous and mentally depressed and also loses weight.

Syphilis is more frequent in men than women. Primary and secondary manifestations rarely occur. Tertiary manifestations are commonly met with, and the laryngeal changes are important. Perichondritis of the larynx may develop while the secondary rash is still out, and within 2½ months of inoculation.

Secondary syphilis may occur in the form

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of erythema (syphilitic catarrh) or of the mucous patch. However, they are rare. It may appear while the primary sore is present or within six or eight weeks but it is as a rule contemporaneous with general secondary lesions. Secondary syphilis appears usually between the third and fifth months from infection. It may appear after one, two, or three years and is apt to recur, but a syphilitic catarrh has no characters to distinguish it from an ordinary laryngitis.

Tertiary syphilis occurs in the larynx in the form of (1) gumma, (2) ulceration, (3) perichondritis and necrosis, (4) postsyphilitic induration, and (5) resulting scars and adhesions.

Invasion may appear as early as the second year, or as late as the fiftieth after infection.

Symptoms will present great variety, according to the situation, extent and severity of the lesion. The voice is generally altered, becoming hoarse and raucous. Its use is not so painful as in tuberculosis. There may be aphonia. Cough is rarely troublesome. Pain is not a marked symptom except when gumma is rapidly breaking down. Dysphagia is not a necessary symptom but becomes marked if a gumma invades the epiglottis or ulcerates deeply between the root of the tongue and lateral wall of the pharynx. Dyspnea will vary with the degree and invasion of the glottic or subglottic space and the amount of fixation of the vocal cords. It is liable to increase rapidly when edema suddenly develops or a piece of necrosed cartilage becomes impacted in the larynx. It may be suddenly and dangerously increased by exertion or the administration of a general anesthetic. Stridor is apt to come on insidiously and the patient becomes gradually accustomed to his contracted airway so that he may deny its presence, even though it is noticeable when he talks quickly. The stridor is always increased at night.

Diagnosis is based on the appearances, history, presence of confirmatory lesions elsewhere, and results of treatment. A history of infection, unless positive, may be neglected. It must not be forgotten that a syphilitic patient may have a laryngitis which is simple, tuberculous, or malignant. As regards treatment, again it is well known that some malignant growths will at first improve under anti-syphilitic treatment. Besides, a syphilitic lesion in the larynx may coexist with tubercle or with cancer. The Wassermann reaction is therefore helpful but not conclusive.

Prognosis is favorable in all cases which come under treatment in good time. It is only necessary to speak with reserve in regard to the recovery of clear voice. In more advanced cases the possibilities of rest, care, prolonged

treatment, tracheotomy, or operations for stenosis, may have to be kept in mind.

Cancer of the larynx is either primary or due to direct invasion from neighboring structure. Most authorities claim that a metastatic malignant tumor in the larynx, secondary to cancer in another organ, is so rare that it is doubtful if there is one fully investigated case on record.

Metastases are very rare though a few cases have been recorded in which secondary affections in the liver, stomach, kidney, or lung were found without recurrence in the larynx which had previously been operated on.

Freedom of the larynx is ascribed to the peculiar arrangement of the lymphatics within the larynx. Although very richly developed they do not anastomose with neighboring lymphatics but form a network of their own which empties into two small glands on each side.

Cancer of larynx is classified into, (a) intrinsic, arising from the vocal cords, the ventricles and ventricular bands, the interarytenoid region, and the subglottic area; (b) extrinsic, those growing from the epiglottis, arytenoids, aryepiglottic folds, the pyriform sinuses, and the pharyngeal surface of the cricoid cartilage; (c) mixed, a combination of extrinsic and intrinsic, in which class must be placed a large number of cases which present themselves only in an advanced stage.

In extrinsic cancer the glands are affected at an early period; the course of the disease is rapid and is seldom checked or cured by operation.

Intrinsic cancer, on the other hand, is a much less hopeless form. It spreads slowly, does not infiltrate so rapidly and in early stages is curable. So long as the disease is limited to the interior of the larynx it does not affect the lymphatic glands and secondary growths are almost unknown. According to statistics, it is a fortunate fact that the intrinsic variety would appear to be the more frequent. Midway between these two is the subglottic variety which offers hope.

The tuberculous process may be manifested within the larynx by infiltration, ulceration, tuberculoma, miliary tubercle, true edema, and cicatrices, and as others say by deposits, catarrh, ulceration, and perichondritis.

Opportunity seldom offers for investigating the early stages of tuberculosis in the larynx, but the process follows an evolution similar to that in other parts (Jobson Horne). Tubercles are relatively rare in the larynx and the special characteristics in this organ are the diffusion of the lesions and the tendency to infiltration and sclerosis. Hence, in cases not very advanced

we may find no tuberculous foci but only a sclerotic tissue infiltrated with round cells.

The diagnosis of laryngeal tuberculosis is not only important on account of the local condition, but also because the laryngoscope can sometimes settle the diagnosis of some uncertain pulmonary infection, and will always prove valuable in forming a prognosis in tuberculosis of the lungs. In a large proportion of cases the appearances described are sufficient to enable a diagnosis to be made from inspection only. Sometimes early symptoms can only be regarded as suspicious until the laryngeal evidence is supported by proof of tuberculosis elsewhere. In other instances the supporting evidence can only be gained by the progress of the case—the gradual increase of laryngeal changes with the slow evolution of early general symptoms. The conclusive evidence of tubercle bacilli should not be waited for; they are not present in all cases. When seeking confirmatory evidence in the lungs it is well to remember that the presence of laryngeal disease may alter the physical signs in the chest, generally in the direction of minimizing them.

Difficulty in diagnosis is chiefly met with in cases where pulmonary and other confirmatory symptoms are absent. It is well known that the frequency of laryngeal invasion increases with the progress and extension of pulmonary tuberculosis.

The injection of tuberculin for diagnostic purposes has a somewhat restricted value. The absence of any reaction does not exclude tuberculous disease; a focal reaction might warrant a positive diagnosis. In any case, it fails to distinguish between arrested and active lesions; the general reaction may give rise to discomfort and unpleasant symptoms; and, in unskilled hands, the test may do definite harm.

Simple laryngitis, if intractable and not explained by any chronic condition of the pharynx or nose, if unilateral or more marked on one side than the other, if associated with any ulcer or unilateral deposit, and if accompanied by any suspicious general symptoms, should suggest the possibility of tuberculosis. Any abrasion or infiltration in the arytenoid region is strongly suspicious of tuberculosis.

Pachydermia laryngitis is limited to the posterior extremity of the cords, but it is firmer, more symmetrical and has a more characteristic appearance. The local discomfort is less and general symptoms are absent.

In leprosy the skin and nasal chambers are always affected first. Deposit takes place in round, firm, fleshy knobs. Ulceration occurs late. There is no pain. The chief symptoms are hoarseness and later on dysphagia.

With regard to syphilis, there is no difficulty

in distinguishing tuberculosis from secondary syphilis, or a simple gumma, but with ulcerating syphilis the task is not so easy. As to site, the epiglottis is rarely attacked primarily by tuberculosis and then it is particularly on its laryngeal surface. Syphilis, on the contrary, has a marked predilection for the epiglottis on its lingual surface. In the arytenoid region a gumma is often single and unilateral. Syphilis is more common than tuberculosis on the anterior part of the cords, although by no means rare in the neighborhood of the process vocalis. The character of the lesions is different. Syphilitic ulcers are surrounded by distinctly congested or inflamed tumefaction and not by the indeterminate, pale, shallow, chronic thickening of tuberculosis. The edges of syphilitic ulcer are definite, distinctly punched-out or undermined, fleshy and the floor of the ulcer is dirty gray, coated with thick adherent pus or irregular necrotic tissue showing little tendency to granulate. The edges of the tuberculous ulcer are irregular, mouse-nibbled, and yellowish, while the floor is shallow, granulating and coated with much mucous and little, easily detached pus. The syphilitic ulcer is more limited than the indefinite tuberculous ulcer; it is prone to extend in depth rather than in surface, it appears more active and may lead to rapid destruction with dense cicatrization and consequent stenosis. The syphilitic voice is raucous and generally strong and painless. That of tuberculous laryngitis is hollow, low and weak. Pain is generally less marked in syphilitic cases unless there is a rapidly breaking-down gumma on the epiglottis or arytenoid. A long standing history of laryngeal trouble, particularly if associated with extensive local disease and slight symptoms, is more indicative of syphilis. The administration of iodide of potassium frequently aggravates tuberculosis of the larynx and may produce edema. It generally improves a syphilitic lesion. The two processes may be present in the same larynx, or may succeed one another; hence a Wassermann reaction though helpful is not always conclusive.

Both benign and malignant neoplasms are rare in the posterior half of the glottis. Their appearance is generally characteristic. In the case of a tuberculoma, a microscopic examination may be required to settle the diagnosis. In middle-aged or elderly men a tuberculous deposit in the absence of confirmatory symptoms may simulate a malignant growth. The detection of an ulcer in some other part of the larynx, the onset of general symptoms, or the evidence of the microscope, will assist in settling the diagnosis.



## TREATMENT OF BENIGN TUMORS

The smaller the growth the greater the difficulty in removing them. The posterior part of the larynx is more accessible than the anterior and the difficulty of removal is very much increased when the growth is below the glottis. Snares are occasionally used for pedunculated growths, yet their use is not free from risk. Chromic acid, nitrate of silver, sulphate of copper, may be required for application to the diseased base of a growth, but removal of growth is best effected by such laryngeal forceps as those of Mackenzie, Killiam and others. In certain cases and in subjects who cannot be manipulated without a general anesthetic, removal can be effected by the directoscope.

Papillomata in children require special consideration because (a) they are more apt to cause respiratory obstruction, and (b) they are liable to recur after removal. If there is no decided laryngeal stenosis, particularly at night, it is well to defer the operation in infants and young children until an age when they can be trained to show the larynx. During this period the prolonged administration of arsenic may be tried as well as iodide of potassium. The results of radium treatment have been praised but it is very difficult to make application through the mouth in children. Adenoids should be removed if any are present. If suffocation threatens life it is best to do a tracheotomy and remove the tumor by direct laryngoscopy. The tracheotomy tube may have to be worn for two or more years when the papillomata generally tend to disappear. Cure has followed tracheotomy within a month and in other cases the tube had to be worn for thirteen years. A tracheotomy opening also allows the intralaryngeal application of radium. The radium must be well filtered, as the reaction in the larynx is often marked. It is still questionable whether radium and X-ray therapy interfere with the development of the larynx in children.

## TREATMENT OF CANCER

Hemilaryngectomy seems to be not the most satisfactory and a much greater risk than a laryngofissure or even total excision. For, once the cartilaginous barrier has been broken down, the glands and the pharynx are so rapidly invaded that generally a still more complete operation is required. With a hemilaryngectomy it is also more difficult to protect the patient from septic pneumonia.

## TREATMENT OF TUBERCULOSIS

Tuberculosis is treated the same as tuberculosis involvement in other parts of body with the addition of galvanic needle, chemicals,

curettage, and galvanocautery. Galvanocautery is a valuable method of cure. Its beneficial action, it is claimed, does not depend so much on the amount of diseased tissue destroyed as on the local antiseptic action and the stimulation of reaction and of limiting fibrosis. It is suitable for deposits as well as for ulcerating surfaces and it can be employed for the destruction of granulating and fungating surfaces. Cauterizations are applied once a month until complete healing takes place.

Pregnancy most always is viewed with anxiety. It would generally contraindicate active local treatment but tracheotomy may be necessary. Some authorities say that after examining a patient suffering from tuberculosis of larynx who is pregnant you should have her remain away from office or absent from your care for three weeks and if on return the condition is progressive you should bring about an abortion or premature labor. The authorities say this is not warranted as the disease advances just as rapidly when the uterus is emptied as when the pregnancy is not interrupted. Pregnancy is to be avoided in cases of laryngeal tuberculosis and nursing should be forbidden.

*Treatment of Syphilis.*—The usual treatment, stressing the iodides.

## SUMMARY

*Benign Tumors.*—(1) Rare after 50. (2) Grows away from tissue. (3) Base of growth, or cord it springs from, only inflamed during laryngitis. (4) may impair action of cord mechanically. (5) No ulceration. (6) Microscopical examination may be necessary. (7) In rare instances it is not easy to distinguish a simple from an early malignant growth.

*Malignant Tumors.*—(1) Rare under 40; generally occur over 50. (2) Occur anywhere on the vocal cords or elsewhere. (3) A solitary growth on the aryepiglottic folds or the epiglottis is very suspicious in patients over 45. (4) Invades the tissue. (5) Inflamed base. (6) Any impairment due to infiltration is strongly suspicious. (7) Tendency to ulceration. (8) Impaired mobility: (a) Not a necessary or frequent and never an early symptom of intrinsic cancer; (b) occurs in advanced cases or those originating in subglottic region; (c) helps to distinguish a malignant from an innocent growth. (9) Frequently biopsy is necessary for diagnosis but operation should follow immediately if necessary.

*Tuberculosis.*—(1) Tuberculosis of larynx always secondary. (2) Invasion is most probably by blood stream. (3) Age between 20 and 40. We must not forget that tuberculosis is not rare after 40. (4) Alcohol, dust, to-

bacco, are factors in all laryngeal affections. (5) Entire absence of subjective symptoms in early or slight cases. (6) Tuberculosis bacilli infrequently found in sputum. (7) Stages of deposits and catarrh; ulceration, perforation, perichondritis may be seen at same period. (8) Posterior half of larynx most often affected. (9) Anemia of palate and larynx early sign. May be replaced by a chronic hyperemia. (10) Catarrh or congestion limited to one part of larynx and early is sometimes suspicious. (11) Paresis of muscles of adductor and tensor may be an early sign. (12) No pain but later painful.

*Tertiary Syphilis.*—(1) Circumscribed gumma not common but a diffuse or nodular gummatous infiltration is frequently met with. (2) Voice hoarse and raucous. (3) Pain not a marked symptom except when gumma is breaking. (4) Dysphagia only a symptom when gumma invades the epiglottis or ulcerates deeply between root of tongue and lateral wall of the pharynx. (5) Dyspnea varies with degree and invasion of glottis and subglottic space. (6) Gumma is not dangerous until it breaks.

423 Metropolitan Building.

#### DISCUSSION

DR. O. JASON DIXON, Kansas City: I do not believe there is any other part where surgical interference gives such remarkable success. If any of you attended the Clinical Society meeting of last fall at Kansas City and saw the remarkable cases which Dr. Lewis brought from Philadelphia, on whom he had done complete laryngectomies, standing up in the Masonic Auditorium and speaking so that any one in the room could hear them, you must have realized the success of surgical interference. The spectacular part of it was that they all had cancer of the larynx. Not only are they alive, but they are speaking and carrying on their business today.

The laryngeal cancer has a tendency to stay intrinsic, to stay long enough, and warn us long enough, and give us time to make a differential diagnosis. I believe errors have been made by going in with the bronchoscope and snipping off a little piece of tissue and sending it to the pathologist, for there wouldn't be enough tissue for him to have a fair chance at the analysis. It looks like inflammatory tissue and probably it is. Probably the tissue was not taken off at the proper point. He didn't get down to the base. Therefore, I believe the thing to do is to study it but not disturb it until we think it is malignant. If we think a thyrotomy is justified we can go in and look. We can tell the patient we are going in to look around and feel and see what the lump is. This can be done under local and if it is a papilloma it is a very pleasant way for the patient to have it removed. A fistula never forms. The cartilaginous structure of the voice box pulls that together and there is no trouble.

Just recently I had a little patient on whom I missed a diagnosis and on whom I operated a second time. She had rheumatism and arthritis deformans. I watched her over a period of a few months. She had difficulty in breathing and loss of voice and I came to the conclusion that she had a

very unusual tumor of the larynx. I decided to do a thyrotomy. I still didn't know and had no idea what the tumor was but I took some of it out. I sent it to Dr. Helwig, the pathologist at St. Luke's Hospital, and he had never seen anything like it. He took it over to Dr. Wahl, of Bell Memorial Hospital, and they decided it was a lipoma. There have only been two cases reported of lipoma of this particular area, the epiglottidean fold. I looked in the patient's throat a few days later, and it had begun to enlarge. I did another thyrotomy and noticed the second time she got along more pleasantly. She didn't have the bronchial secretion. While in Davenport I talked to Dr. New about it and he told me he was working on a paper at that time on the two-stage laryngectomy, or the two-stage work on the larynx. He said that these patients all vaccinate themselves when you open the trachea.

I have done quite a number of tracheotomies and I notice that nearly all of them have the violent reaction. You need not have the concern of going back into the larynx again as the patient has vaccinated himself.

I think we have been inclined to consider all tuberculous lesions of the larynx as fatal. Dr. Simon, who has done quite a little work with tuberculous patients, tells me he has had several recently, and I have seen some.

The drawings and photographs of Dr. Patton's are certainly very instructive. I can see why it is difficult to locate a lesion or figure out whether it is a normal larynx or abnormal. But a patient who is hoarse should have not one but repeated laryngeal examinations. As Dr. Patton has brought out, the age of the patient being over forty, and then above fifty, is very instructive. These patients need not have, if diagnosed early, a laryngectomy but a thyrotomy with removal of the tumor and the cord so long as it is intrinsic.

## PRIMARY CARCINOMA OF THE LUNG, WITH REPORT OF A CASE\*

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AND

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While carcinoma of the lung in its classical form can readily be diagnosed, yet many difficulties may be encountered because of the close similarity of its symptoms and signs to other more common pulmonary diseases. Such difficulties are particularly found in cases where there occurs a pulmonary infection simultaneously with the cancerous process in the lung. According to Graham,<sup>1</sup> ulceration, necrosis and superimposed infection, are a common issue in carcinoma of the lung, and these secondary changes very frequently overshadow and complicate the clinical picture of the actual tumor growth. However, with the recent development of the bronchoscope and advancements in

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N. B. We wish to express our thanks to Dr. W. B. Yost and Dr. Elsworth Smith for their permission to publish this case. We are also indebted to Dr. George Ives for his assistance in the interpretation of the microscopic findings of the expectorated tissue.



roentgenological examination of the lung, particularly with the aid of lipiodol, the clinical diagnosis of tumors of the lung is rendered less difficult. The laboratory may at times through careful examination of sputum and pleuritic effusions be able to detect tumor tissue in these fluids. Such diagnostic methods have been used formerly by Claisse,<sup>2</sup> Betschart,<sup>3</sup> and others and more recently by Adler,<sup>4</sup> Seeco and Soltzsch<sup>5</sup> and Goldman.<sup>6</sup>

Because of some unusual features presented by this patient, both from the clinical and the laboratory point of view, we believed it of interest to report the case.

#### REPORT OF CASE

M. F., a white man, aged 60, entered the Missouri Baptist Hospital, February 3, 1930, complaining of a nonproductive cough, weakness, malaise, aching, loss of appetite, loss of weight and attacks of dyspnea, accompanied by great anxiety. The onset of the present condition he dated back to five months previously when he caught a cold from which he failed to recover. As his condition failed to respond to treatment he became confined to bed at his home. After spending three weeks there with no apparent improvement he entered the hospital. The family history was irrelevant.

*Past History.*—Had repeated attacks of rheumatic fever during childhood and was subject to rather frequent chest colds. Was always active and led a life of dissipation.

The physical findings on admission to the hospital were briefly as follows: A well nourished and well developed male, with a peculiar ashen complexion, slightly dyspneic but otherwise comfortable. The nail beds were slightly cyanotic and the fingers and toes showed slight clubbing. He had a perforated nasal septum attributed to a previous nasal operation. The left middle meatus contained pus and the right naris was obstructed by polyps. The teeth were carious; the left vocal cord lagged slightly. There was slight increase in breath sounds over the right apex of the lung. A few coarse rales were heard at the right base. There was a double mitral, and aortic murmur, which could be heard over the entire chest. Blood pressure 112/76. In the abdomen, definite tenderness and slight muscle spasm could be elicited in the right upper quadrant. The liver was palpable about three finger breadths below the costal margin.

*Laboratory Findings.*—Urine was negative excepting for a trace of albumin. The white blood cells numbered 21,000, red blood cells 4,850,000, and hemoglobin 95 per cent (Sahli). Blood Wassermann was negative. The electrocardiogram showed inversion of the T waves in all leads. X-ray and fluoroscopic examination of the chest revealed a widened and pulsating aorta; hilus shadows increased with marked calcification. A diagnosis of a probable aneurysm of the aorta was made at this time.

The course in the hospital was gradually downhill. His temperature varied, ranging usually between 97 and 102 degrees F. On February 6, the third day following his admission to the hospital, the patient had a severe attack of dyspnea accompanied by great anxiety which terminated in a paroxysm of cough during which a large amount of necrotic, blood-stained material was expectorated. Microscopic examination of this material was unsatisfactory. From

this time on a moderate amount of sputum was expectorated which was always blood tinged. Six days later, on February 12, a similar attack occurred and microscopic examination of the expectorated material revealed nothing significant. Examination of the chest at this time disclosed an area of dullness with tubular breathing over the right apex. This gradually extended downward involving the entire upper half of the right lung. A friction rub could be heard in a corresponding area posteriorly. X-ray examination of the chest at this time revealed an extension of the process in the right lung now involving its upper third. In view of these X-ray findings, a diagnosis of a possible lung tumor was made. Following this the attacks of dyspnea became more frequent and severe, the heart began to fibrillate and it was found necessary to digitalize the patient. On March 2 a large piece of bloody necrotic material was again coughed up, the microscopic examination of which revealed definitely malignant tumor tissue. Because of a constant pain

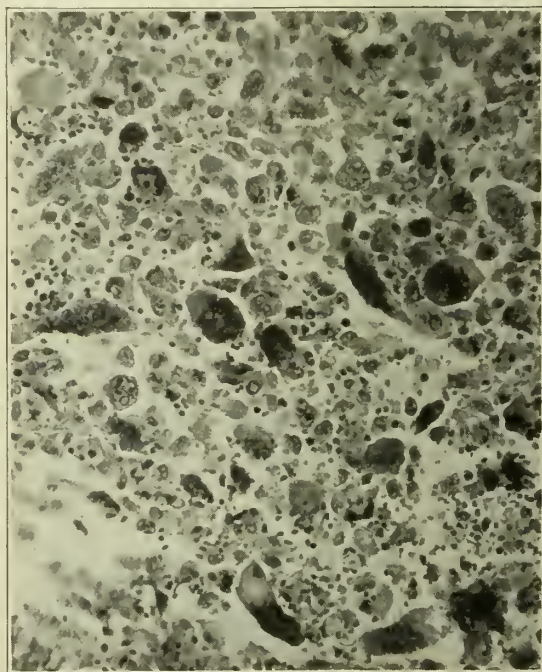


Fig. 1. From the expectorated tissue showing numerous neoplastic cells. Tumor cells are large and contain deeply staining nuclei. Occasional mitotic figures are seen. (Hematoxylin and eosin.)

over the sternum, restlessness, dyspnea and anxiety, it was found necessary to keep the patient under the influence of morphine until he died on March 6.

The clinical diagnosis was rheumatic heart disease; possible aortic aneurysm (?); possible lung tumor (?).

*Necropsy Findings.*—The body was fairly well developed and nourished. The heart was moderately enlarged and hypertrophied. The mediastinal pleura on the right side was thickened and firmly adherent to the right lung. The myocardium of the apex of the left ventricle was thinned out and contained extensive fibrous changes. Scattered through the myocardium of both ventricles there were yellowish and greyish streaks, suggesting both fibrous and fatty changes. The mitral valve was thickened and calcified and undoubtedly had been insufficient dur-



ing life. The aortic valve showed calcification and partial fusion of the two left cusps with considerable narrowing of the aortic opening. There was considerable hyaline thickening of the intima of the aorta.

**Lungs.**—The lungs were voluminous. Both pleural cavities were obliterated as a result of adhesions. The right lung was firmly adherent to the chest wall and when removed its pleural surface was ragged and covered with a fibrinopurulent exudate. The left lung was less adherent and more easily removed. The entire upper lobe of the right lung was consolidated; on cut section it was found to be riddled with multiple abscesses, some of the larger ones measuring about 4 cm. in diameter. Grossly, these abscesses were suggestive of a tuberculous process with a superimposed pyogenic infection; they contained thick, yellowish pus without odor. In the region of the hilus of the right lung there was a much larger cavity, measuring about 10 cm. in diameter, containing a clay-like necrotic material suggestive of necrotic tumor tissue. The cavity extended into the upper lobe of the lung where there was a sharp line of demarcation from the surrounding lung tissue. At one point, however, the tumor mass was found to perforate the right bronchus and a large polypoid mass had grown into its lumen. The remaining two lobes of the right lung, as well as the greater part of the left lung, showed diffuse areas of bronchopneumonia.

Some of the peribronchial lymph nodes contained many calcified areas; others were enlarged and apparently acutely inflamed. They showed no gross evidence of tumor metastases.

**Liver.**—The liver presented a diffuse fatty infiltration. The gallbladder showed pronounced mural thickening; its cavity contained numerous stones.

**Spleen.**—The surface was sprinkled with numerous healed miliary tubercles. On cut section it appeared congested and softened. The adrenals were normal.

**Kidneys.**—A small white nodule was found on the surface of the right kidney, suggestive of a benign renal adenoma. The cut section of both kidneys showed small scars in the cortex. The ureters, bladder and prostate were normal. The gastro-intestinal tract was normal excepting for a thickened, chronically inflamed appendix.

**Microscopic Examination.**—*The heart.* The pericardium was thickened and infiltrated with leukocytes and lymphocytes. The myocardium showed pronounced fibrous changes with occasional cellular infiltration. In the intimal coat of the aorta there were hyaline changes and calcium deposits. The media was normal but the adventitia was very thickened and contained numerous dilated blood vessels surrounded by dense collections of cells which consisted for the most part of lymphocytes and leukocytes and a few plasma cells. *The Lungs.* The right lung showed two distinct histological changes; one, an acute tuberculous process and the other a malignant tumor growth. There was a widespread tuberculous pneumonia with an inflammatory exudate filling practically all the alveoli of the upper lobe. Scattered giant cells and a few well formed tubercles were seen in various places in this exudate. In addition, a few abscess cavities had been formed by degeneration and necrosis of the exudate and portions of the lung tissue. In the infected areas of the lung there was almost complete absence of tumor tissue, excepting for occasional cancer nests lying immediately adjacent to the main tumor mass. In these areas the tumor cells were arranged in the form of pseudo-alveolar-like structures, an arrangement which was markedly different

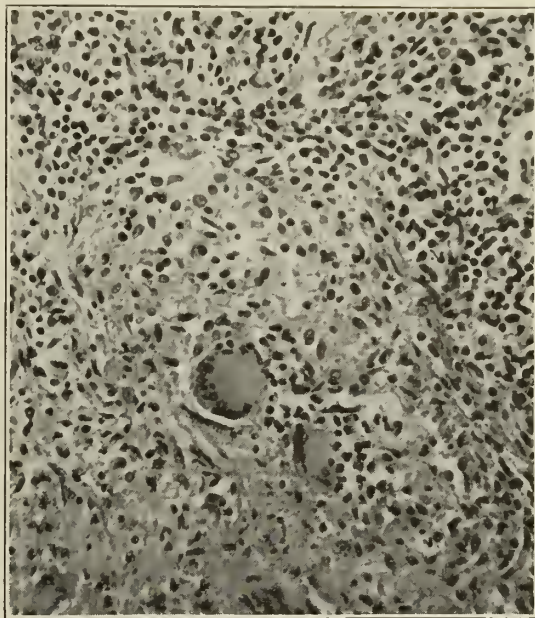


Fig. 2. From tuberculous area of the lung showing two giant cells with lymphocytic infiltration. (Hematoxylin and eosin.)

from that found in the main tumor. In the latter situation the tumor cells were undifferentiated and were mostly large, flat, epithelial cells containing a single or multiple nuclei. Many of these cells had the appearance of the large giant cells seen in bone

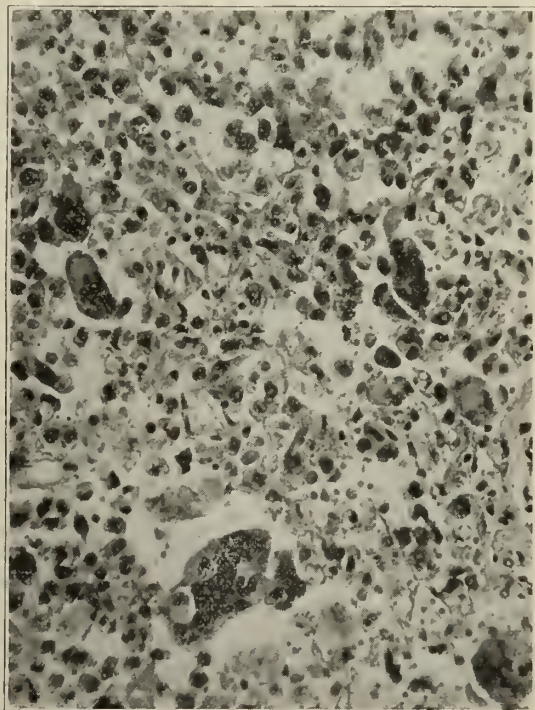


Fig. 3. From tumor mass found in the lung. Most of the tumor cells are large and contain many nuclei that stain deeply. (Hematoxylin and eosin.)



tumors. The nuclei were hyperchromatic and irregularly placed in the cell, some occupying a central and others an excentric position. Mitotic figures were very frequent and in places took a bizarre atypical shape, denoting a very malignant form of neoplasm. There were extensive areas of necrosis in the main tumor mass, but almost complete absence of inflammatory cells. *The liver.* The liver showed a diffuse fatty infiltration with dense collections of leukocytes in the periportal spaces. The gallbladder had a thickened wall which was infiltrated with lymphocytes.

The spleen showed the microscopic picture of an acute splenic tumor. The adrenals were normal. One kidney had a benign adenoma immediately underneath the capsule. In both kidneys there were small cortical scars. The bladder and prostate were normal, the pancreas was normal, the stomach and intestines showed no changes. The wall of the appendix was thickened and infiltrated with numerous leukocytes and lymphocytes.

#### COMMENT

The subject of primary carcinoma of the lungs and bronchi has aroused great interest in recent years and although at one time the disease had been considered a rare occurrence it is now quite frequently encountered. Fried<sup>7</sup> attributes this apparent increase of lung cancer to the better diagnostic methods at our disposal and the increased longevity of the human race. The recent advancements in bronchoscopy and roentgenological examinations of the chest undoubtedly offer increased help in recognizing hitherto undiagnosed tumors of the chest.

Numerous attempts have been made to identify tumor cells in the sputum and pleural effusions recovered from patients suffering apparently from a pulmonary neoplasm. Very frequently, however, it is difficult to make a definite diagnosis from the microscopic appearance of these fluids. This is because the tumor tissue recovered under these circumstances is usually not a homogeneous mass, but consists of isolated cells which are for the most part degenerated and have lost their typical tumor structure. Furthermore, the presence of an infection together with the tumor (and this is rather frequent) complicates the picture still further through the introduction of inflammatory cells and desquamated alveolar or bronchial epithelium. These cellular elements often assume a microscopic appearance that is indistinguishable from that of carcinoma. The expectorated material recovered from this patient contained sufficient tumor tissue to make the diagnosis conclusive during life. The tumor cells were readily identified because of their atypical form, staining properties, and the presence of many mitotic figures. The cells were large, containing either a single or multiple nuclei, the latter taking a deep hematoxylin stain. The diagnosis of malignancy of the lung was therefore made on the grounds of the

laboratory findings although clinically it was more suggestive of an aortic aneurysm. An autopsy later confirmed the laboratory diagnosis of carcinoma of the lung.

Another interesting feature which this tumor presented was the absence of any local or remote metastasis in spite of its very malignant histological characteristics. This lack of metastasis may be accounted for by the extensive necrosis of the tumor itself, which interfered with its advance into adjacent and distant structures.

The presence of tuberculosis along with the carcinoma in the lung is rather interesting since many observers, including Ewing,<sup>8</sup> consider tuberculosis an important etiological factor in the genesis of carcinoma of the lung. We feel, however, that in this case the tuberculous process was a mere coincidence. Furthermore, we are inclined to believe that in its growth the tumor extended into neighboring quiescent tubercles, exciting a fulminating tuberculous pneumonia through the liberation of a number of viable tubercle bacilli. If this is the case, it is of particular interest because of the idea maintained by a certain group of observers<sup>9</sup> that tuberculosis and carcinoma are incompatible.

#### SUMMARY

1. A case is presented in which an expectorated piece of tissue served to make definite diagnosis of carcinoma of the lung. The diagnosis was later confirmed at autopsy.

2. The striking features of the carcinoma were its localization to one lobe of the lung and absence of metastasis. Its association with a fulminating tuberculous pneumonia was an added feature of the case.

3720 Washington Blvd.

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## PITUITARY EXTRACT (POSTERIOR LOBE)

NASAL SPRAY FOR CONSTIPATION

A. SOPHIAN, M.D.

KANSAS CITY, MO.

Volumes have been written on the abuse of cathartics. Everybody agrees as to the menace but cathartics are of all drugs still most extensively prescribed by physicians and pur-

chased by the public at the counter. Large institutions and watering places have been built up about intestinal treatment of one kind or another, but basically surrounded around the cathartic or enema.

Proper bowel function is a process of bowel muscle mechanics. The relationship of food, digestion, general disturbance producing atony or spasm, and local disturbance producing mechanical interference, are recognized factors that interfere with proper bowel function and in any intelligent treatment they require direct remedial treatment.

The cathartic habit, the gastric upset after cathartics, bowel irritation, and general depression are only too well known. The ideal goal desired is to produce a physiological emptying of bowel contents through proper muscle stimulation and coordination. Pituitary extract given hypodermically and intravenously stimulates and increases normal peristalsis without disturbance by incoordinate intestinal spasms.

The effect of pituitary extract on the bowel is physiological and the function is completed without after-effect. The objection to the hypodermic use of pituitary extract, the difficulty of always giving an adequate dose which does not overstimulate and produce cramps, or produce general upset from vasomotor constriction, limits its general use by the hypodermic route except in special instances.

The writer has had considerable experience with the intranasal pituitary extract spray of pure undiluted surgical pituitary extract in the treatment of diabetes insipidus. The pituitary extract snuff and spray treatment had been suggested by other observers for the treatment of this disease, originally by Blumgart.<sup>1</sup> It has been established that the polydipsia and polyuria can be effectively controlled by this treatment. The objectionable symptoms of intestinal cramps, cardiac depression and vasomotor reaction can be eliminated with proper use in the spray treatment, whereas the hypodermic administration invariably produces some upset. Likewise the possibility of pulmonary vascular change with generalized fibrosis following long continued hypodermic use is a probability which has been strongly suggested. In a case of diabetes insipidus recently reported by the writer this subject will be studied experimentally.

The nasal spray of surgical pituitary extract in small doses is easily controlled and produces a physiological bowel movement with a feeling of function completed and no after-irritation. Doses of  $\frac{1}{2}$  cc. once, twice, or three times a day are effective in producing one or more

bowel movements, usually in from one to seven hours after the use of the spray. Large doses produce pituitrin cramps. The spray has been used to produce bowel movement in post-operative general abdominal and intestinal cases, in atonic bowel, in ordinary constipation, and in spastic constipation; also in bowel adhesions with local retention. The results are surprisingly uniform and the physiological effect is most excellent. The cooperation of the patient for other dietetic and mechanical measures is easily obtained.

The experience with the intranasal spray so far is that after a few days the dosage must be reduced, which is particularly encouraging, especially in cases of simple constipation where the normal physiological bowel movement with suitable dietetic measures can be established.

Another point to be considered is the observations by Thienes and Hockett, of the University of Oregon Medical School, on the effect of pituitary extract administered by hypodermic on the absorption of drugs in the gastro-intestinal tract. The studies were made experimentally on the dog and it was demonstrated that "pituitary extract causes marked delay in the absorption of drugs from the gastro-intestinal tract. This was found in the case of morphine, cannabis, and likewise with sugar absorption and phenosulphonephthalein." The intranasal absorption, it has been demonstrated, is undoubtedly slower than through the hypodermic route but produces similar results, therefore analagous results in absorption should be expected. In some cases where active rapid absorption is desired this delay is objectionable, but in other instances the slower absorption of drugs given over a long period of time is much to be desired.

702 Argyle Bldg.

## INDIA EYE CLINICS

A. W. McALESTER, III, M.D.

KANSAS CITY, MO.

At certain seasons of the year there are two places in India where ophthalmic surgery is done on a large scale. One is conducted by a Hindu, Mathra Das, in the village of Moga, located 80 miles south of Lahore, and is not to be found on the average map. The other is a hospital located in Shikarpur on the northern edge of the province of Sind on the Baluchistan frontier. This hospital is conducted by Dr. H. T. Holland (Fig. 1). There are other hospitals which do a large amount of ophthalmic operative work, but they carry on throughout the year and do not concentrate during the winter season.

<sup>1</sup> Blumgart, Herman L.: Arch. Int. Med. 29:508 (April) 1922.





Fig. 1. Dr. H. T. Holland.

Dr. Holland goes to Shikarpur from his home in Quetta each year on January 1. The buildings and grounds were a gift from a wealthy Hindu banker, Seth Hairanand. They are maintained by donations from Dr. Holland's friends, collections from patients and the endowment fund left by the banker. In 1912, Dr. Holland was asked to go to Shikarpur to operate on some poor people and use one of Seth Hairanand's bungalows as a hospital. The result of this work was so gratifying that the rich Hindu built and equipped a hospital for him. The first year less than 50 patients submitted to operation but in 1929 there were about 3,000 patients. They come from all over the western side of India, even a few from Persia and Afghanistan. About 75 per cent of them are Mohammedans, the remainder Hindu. The people are very poor, the average income being from \$4 to \$5 per month.

Dr. Holland has been doing missionary work in India for nearly 25 years. On the first of last year he was Knighted by the British Government, not only in recognition of his medical missionary work, but also for promoting peace and good-will between the government and the different tribes of Western India. Dr. Holland's influence among the natives extends over a wide area and he is held in highest esteem by these people. The government recognized this so much that his counsel is often sought on tribal affairs.



Fig. 2. A busy morning during the second week.

The hospital is staffed by Dr. Holland and his invited guests, consisting usually of two or three army surgeons or medical men from the missionary service and, as a rule, one or two men from the continent or states.

The building where the operative work is done is located in a compound about eighty yards square. The doors are opened at 9:00 a. m. and the examining room is filled. This room holds about 75 people and is filled from five to seven times during a day. The patients file past a desk, names and ages are taken, and they are examined. If they have cataract, leukoma or glaucoma they are sent to the cataract room. If they have entropion, lacrimal sac, trachoma or some infection to be treated surgically, they are sent to a room where the "dirty" cases are treated. A few of the bad trachoma cases are taken for treatment. The un-operative cases are sent away with the exception of some surgical cases such as bladder stones, tumors and hemorrhoids. These are operated on at the end of the day when the ophthalmic surgery is finished. About 80 per cent of the patients have trachoma in some form or another.

During my first week, there usually were from 35 to 40 operations performed in a day, but as the patients were released and



Fig. 3. Patient after operation ready for transportation to the wards.



Fig. 4. A section of the ward. Note the white brick posts which support roofing to give additional space.

returned to the villages the number increased. Our biggest day was in the fourth week when we had 227 ophthalmic operations. We could have done 40 to 50 more but it was getting late and the light becoming poor. One not knowing India can hardly conceive of the enormous number of patients that pass through this hospital in a day. We have had over 500 new patients apply in one day.

The morning from 9:00 until 12:00 is spent in seeing the postoperative cases. The wards are brick sheds about six or seven feet high, wide enough for three beds, and fifty to sixty yards long. The capacity is approximately 1,200 and when we are going at top speed they are usually full. The patient furnishes his own bed clothing consisting of a quilt, camel's hair blanket or goat skin robe. The hospital feeds most of the patients. The food consists of a sort of hoecake made of whole wheat flour and water, beans and rice. Almost a ton of rice is consumed in a day during the height of the season.

The cataract patients are dressed on the fifth day. The vision and condition of the eyes are noted on a small ledger and the



Fig. 5. Making the morning rounds.



Fig. 6. A Sind taxicab. Patients arriving at hospital from the morning train.

eyes rebandaged. The patient is seen again on the seventh day and, if everything is well, a shade is given and he is discharged on the ninth or tenth day. The other cases are allowed to walk to the dispensary where they are dressed. It is not uncommon to find a patient who has removed his bandage on the second or third day to see if he can count fingers or walk about, and often leaves for home with no ill effect from his early departure.

When you return to the main building the operating rooms are filled with patients squatting around the wall in Hindu fashion. An orderly puts cocaine in their eyes three times at five minute intervals. The patient is put on the table, told to remove his shoes and turban and a cloth is wrapped around his head. The eye is irrigated with 1-3000 bichloride of mercury, tension taken (McClain) and the operation performed. The fellow eye if necessary is treated in the same manner and the patient removed to the ward. The operator goes to the next table and a new patient is put on the table just vacated. For a cataract operation the time consumed is two to four minutes. When not working in the cataract room one is usually in the room where the septic cases are done, or seeing patients



Fig. 7. An old couple who came six hundred miles to have cataracts removed.



as they pass by the booking desk. On return after lunch the same routine is repeated until 6:00 or 6:30.

The infection averages about 1.5 per cent; expulsive hemorrhages about .5 per cent. Fully 70 per cent of the cataracts were intracapsular. The remainder were capsulotomy, and a few by Barraquer's method. As to the escape of vitreous, I have no figures but estimate it to be not over 6 or 7 per cent. Our chief cataract complication was iritis and prolapse of the iris. We ran a series of cataracts doing an iridectomy, without iridectomy, and using peripheral-iridectomy, and found our best results to be with the latter. For glaucoma we did iridectomy as it is the experience out there that only 40 per cent of the trephines remain filtering at the end of a five year period. For corneal ulcers in trachoma the lids were either painted with 5 per cent silver nitrate or scraped, and 4 per cent sodium chloride injected subconjunctively. We found 1-2000 cyanide of mercury stops many of the postoperative infections but only when used very early. About 5 per cent of the cataract patients want glasses. As these patients came up for refraction they were stood at the end of a room, and plus ten was put on. The nurse stood off about 10 feet and asked them to count fingers. If they did well, she put on plus eleven and stood a few feet further from the patient and he was given the glass he could count with the best. It is obviously a crude method but very practical for the Indian type of patient.

The season closed at Shikarpur on February 20 with a total of a little more than 2,900 ophthalmic operations. From Shikarpur I went to Moga for three or four days but left as the season had not started. Mathra Das has much of the same type of a clinic or hospital as Dr. Holland has, only it is run by the government.

Colonel Wright has quite an organization in Madras, it being the largest and most modern government ophthalmic hospital in India and should not be missed during a visit there. I also visited government hospitals in Calcutta, Banaras, Delhi, Lahore and Bombay. These institutions do general work and are well managed by the British. Colonel Smith's old hospital in Jalandhar has been converted into a girls' school and replaced by a fine modern hospital.

706 Rialto Bldg.

## THE MOTOR CAR DRIVER'S VISION

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United States Navy

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Statistics of motor car accidents and fatalities are confusing but it is safe to say that the numbers are increasing daily. Regulations concerning the operation of motor vehicles are being studied and promulgated by every large city in the country. However, little attention is paid to the physical fitness of drivers, particularly to their visual acuity. Some states require strict examination for operators' permits but those states are few in number.

After examining a large number of applicants for enlistment in the Navy the writer is convinced that many of the numerous accidents must be due to poor vision. To a lesser degree is included poor color perception. An example of the latter defect in a motor car driver was witnessed personally by the writer recently. At a crowded intersection guarded by red and green traffic lights, a color-blind driver stopped suddenly and sat intently waiting for the green light to change to red. As soon as the red light came on he drove blythely into the cross traffic and caused a jam that required five minutes to untangle. He was red-green color-blind and recognized the green as red, when the lights changed to another light he thought it was time to proceed.

Several applicants for the Navy have stated that they had motor cars to dispose of before they could leave. Upon examination it has been found that many of them have a vision of ten-twentieths, or even lower. In other words, they could see at ten feet, or even five, only what they should recognize at twenty.

The good driver does not watch the road immediately in front of his hood but takes in the stretch of fifty yards or so in front of his car. It is easy to see how a driver of the type mentioned could fail to see an oncoming car until it was too close to avoid.

The average age group of boys we examine runs from 18 to 25. If poor vision is so prevalent in that group what must it be among the older people who drive cars? This older group is also slower in thinking and slower to act in an emergency. What would be a safe speed for a driver with good vision might be dangerous for the near-sighted person.

According to the report of the Surgeon General of the Navy for 1928 the following table gives the figures for rejections by all recruiting stations in relation to poor vision or defective color perception:

Total applicants for enlistment.....	76,807
Total examined by Medical Officers.....	60,833
Total rejected by Medical Officers.....	32,027
Total accepted and enlisted.....	20,939

Of those rejected by medical officers the following involved vision:

Total rejected.....	32,027
Color-blind .....	1,249
Errors of refraction.....	4,650
Other eye conditions.....	473

Of those rejected 6,372, approximately 20 per cent, were for poor vision or defective color perception in an age group of about 18 to 25. One has only to see the drivers with thick lenses leaning over the steering wheel and peering into the distance to understand why many accidents are caused by poor eyesight.

It is unfortunate that a man or woman with defective vision should be allowed to endanger the lives of others with a motor car, but nevertheless it is so.

In most states a driver applies for a license for his car and takes the tags home to put on front and rear. He is not required to have a license as a private operator. A licensed car will kill as many as one without tags. It is surprising that there are not more accidents after considering the increase in the number of automobiles.

It is time that every person seeking to operate a motor car on the streets be required to demonstrate his mental and physical fitness to do so. There is nothing to prevent a moron from buying a cheap car and driving it on the streets except the lack of the necessary ten or fifteen dollars to purchase a second-hand car.

409 P. O. Bldg.

## SPECIAL ARTICLE

### THE ST. LOUIS PURE MILK COMMISSION\*

IRENE WOLLMAN

Assistant Secretary

ST. LOUIS

HISTORICAL

The inception of the work of the St. Louis Pure Milk Commission dates from the spring of 1903, when Mr. Walter Bernays, at that time City Chemist of St. Louis, paid a visit to Mr. Nathan Strauss, of New York City, who had for many years been furnishing modified milk to the poor of that city. Mr. Bernays learned that Mr. Strauss was willing to furnish the equipment for the establishment of a milk

laboratory in St. Louis, provided the necessary support were given by the philanthropic citizens of the city.

Later the matter was laid before the board of directors of the St. Louis Provident Association with a request that the association undertake this work. In November, 1903, Drs. E. W. Saunders and H. J. Scherck read papers at the annual meeting of the Provident Association and urged not only the desirability but the necessity of inaugurating the work in our city.

At a meeting of the St. Louis School of Philanthropy held in January, 1904, the whole subject was laid before 150 of the philanthropic workers of the city and a resolution was unanimously adopted authorizing the appointment of a committee of twenty-seven to become the first board of directors and to arrange for the incorporation of the Commission. The following names were agreed on for the board of directors for the first year: Mr. Walter Bernays, Dr. John C. Falk, Mrs. August Frank, Miss Marie Garesche, Mr. Bernard Greensfelder, Mr. Frank P. Hays, Mrs. Otto Heller, Miss Mary Hoxey, Dr. A. R. Kieffer, Mrs. O. L. Lake, Mr. H. F. Langenberg, Mr. L. H. Lionberger, Prof. A. O. Lovejoy, Mr. J. Hal Lynch, Dr. Albert Merrell, Mrs. Philip N. Moore, Dr. Jesse S. Meyer, Mr. W. H. McClain, Mr. Chas. Parsons, Miss Charlotte Rumbold, Dr. H. J. Scherck, Mr. R. M. Scruggs, Mrs. E. H. Sippy, Mr. Walter A. Stix, Dr. Mary Tucker, Mrs. August Tucker, Mr. D. R. Wolfe.

This committee of twenty-seven, representing the leading departments of philanthropic effort of the city, filed the papers for the incorporation of the St. Louis Pure Milk Commission on February 26, 1904.

Immediately upon the receipt of the charter the organization of the board was completed and the various committees for active work created.

The corporation was formed for the following purposes: To accept of Mr. Nathan Strauss, of New York, the necessary machinery and apparatus, gratuitously offered by him, for the proper installation of a plant for sterilizing and modifying milk, that the product thereof which was intended essentially for infants might be sold at cost or donated to improve the quality of milk sold in St. Louis and to encourage the establishment of model dairies.

The laboratory was opened and fully equipped at a cost of \$2,459.50, in a building tendered by the Provident Association and was formally dedicated on June 28, 1904.

At this laboratory, located at 1726 North

\* Compiled from the archives of the Commission.



13th Street, milk modifications were prepared and bottled in individual feeding bottles ready for use in the home. These bottles were packed in specially prepared cases and thoroughly covered with cracked ice. In these cases they were distributed to the pure milk stations located in the various congested districts of the city, where they were delivered to those who applied for them with a prescription from a physician indicating the modification needed for the particular child.

This laboratory was operated by the Pure Milk Commission from June 28, 1904, to July 1, 1926. During that time a total of 8,120,003 bottles of milk were distributed.

In order to be of better service to the people needing this milk, and to avoid the necessity of the mother calling at the distributing station each day for her supply of milk, the Commission closed the laboratory on June 30, 1926. Beginning with July 1, 1926, the milk was modified and distributed directly to the mother in her home by the Walker-Gordon Laboratory of the St. Louis Dairy Company. In this way the Commission was able to reach parts of the city that could not be reached through its pure milk stations.

From July 1, 1926, through May 31, 1930, the Walker-Gordon Laboratory modified and distributed for the Pure Milk Commission a total of 832,609 bottles of milk, making a total of 8,952,612 bottles distributed by the Commission during the period of its existence.

That this vast work has been of no inconsiderable value in reducing the infant mortality in St. Louis is shown by the following figures: In 1906 the mortality of children under one year of age was 134 per 1,000 births, and in 1928 it was 61 per 1,000 births, an actual decrease of 73 per 1,000 births or about 50 per cent in twenty-two years. Some credit for this surely belongs to the St. Louis Pure Milk Commission.

It is of especial historic interest to record here that, under the auspices of this organization, an Infant Welfare Station, modeled upon the French "Goutte de Lait" was opened in the laboratory building by Dr. Adrien Bleyer in 1906. This was the first of these stations to appear in the United States.\* Since that time the growth in number and influence of these stations as the centers from which the campaign to reduce infant mortality is directed, has spread throughout the great cities of our country and the world.

The Commission conducted two surveys regarding the need for milk modified and bottled in a central laboratory for the individual child, the first in November, 1924, the second in August, 1928. These surveys revealed the ex-

istence among the illiterate and especially the newly arrived and non-English speaking mothers in the slums, of a group who were for these or other reasons incapable of assuming the responsibility of modifying milk for their babies in their own homes. The immediate needs of these babies thus constituted an emergency which could best be met by the system of modified milk distribution available at that time in St. Louis, it being understood of course that home modification would replace laboratory modification just as soon as, in the opinion of the clinic nurse, the mother had learned how to sterilize and measure the milk and do it in a cleanly manner. How small or how large this group may be at one time or another in St. Louis or any other large city, it is quite impossible to say nor do we know what proportion of the death rate of infants in large cities may be attributable to this factor. It is however probably of sufficient importance to be made a subject of special study.

The St. Louis Pure Milk Commission was supported by direct contributions from the general public and by special contributions from the St. Louis Post-Dispatch Free Milk and Ice Fund and by an endowment from the Eliza McMillan estate. In the year 1923 the Commission was invited to become a member of the St. Louis Community Fund and since then received support in part from that source.

From time to time the question arose as to the advisability of having milk for infant feeding distributed by a special agency, the theory advanced being that the distribution of modified milk really belonged to a case investigating agency already in possession of details as to the family situation which the Commission was not in a position to acquire and which would include the needs of the baby, whether medical or material relief, among the several family needs to be remedied. After many round table discussions, acting upon the recommendations of the Community Fund, a committee was appointed to draw up plans, which were presented to the board of directors of the Pure Milk Commission. After considerable discussion by the board the plan was adopted, and on May 31, 1930, the Commission discontinued distributing milk for infant feeding, and was no longer a member of the Community Fund or Community Council.

Beginning with June 1, 1930, the distribution of milk for infant feeding was taken over as a part of the general relief of the family by the following case investigating agencies: St. Louis Provident Association, St. Vincent de Paul Society, Jewish Community Center and the Salvation Army.

During its twenty-six years of service to this community the St. Louis Pure Milk Commission has had but three presidents, Dr. Al-

\* Bleyer, Adrien: An Infant Welfare Station in St. Louis, 1906, *J. Missouri M. A.*, 18:51 (February) 1921.

bert Merrell, whose kindly vision, with that of others, originated the pure milk idea in St. Louis; Dr. George M. Tuttle, who gave of his time untiringly for many years, and Dr. Adrien Bleyer, who has carried on the work since 1926. Lastly and as deserving of special mention were the services of Mr. Herbert Mortland who, as manager of the laboratory and secretary to the board, became and for many years remained the guiding genius of the work.

#### CERTIFIED MILK

In addition to the distribution of modified milk for infant feeding, the Commission has rendered an important service in improving the general milk supply of the city. This was accomplished through sponsoring and supervising "Certified Milk." At first it was difficult to find a dairyman who would put his dairy in proper shape to meet the requirements of certification, but at the present time there are three dairies that comply with the rigid requirements of the Commission and are supplying certified milk in St. Louis. These are the Pevely Dairy Company, with its own certified farm at Crescent, Missouri; the St. Louis Dairy Company, selling certified milk produced at the Champ-Goodwood Farm, at Brown and Natural Bridge Roads, St. Louis County; and the Highland Dairy Farms Company, selling certified milk produced at the Aero Acres Farm, at Clayton and Kehrs Mill Roads, Clayton, Missouri.

Certified milk is pure, clean, fresh, wholesome cow's milk in its natural state, bottled and sealed at its source of production and ready for distribution to the consumer when it leaves the farm. Some of the requirements of a certified dairy are: Inspection of the dairy monthly by a veterinarian employed by the Commission, the privilege of selling certified milk being extended from month to month upon approval by the certification committee of this body; the medical examination of employees, with special reference to diphtheria, streptococcus and typhoid carriers; the physical equipment, including cleanliness of barns and milk rooms and barnyards, the cleanliness and milking of the cows, the sterilization of utensils, examination of the water supply, etc.; lastly, three samples of the milk from each dairy are examined weekly by the city chemist and the city bacteriologist as to quality, freedom from preservatives and the determination of bacterial count, which last serves as a valuable check on the manner of handling the milk at the dairy and in its transportation to the consumer.

The St. Louis Pure Milk Commission is a member of the American Association of Medi-

cal Milk Commissions and since June 1, 1930, has continued as an independent organization supervising the production of certified milk sold in St. Louis. The office of the Commission is located at 3720 Washington Boulevard.

#### REGIONAL ANESTHESIA IN UROLOGY

Clark M. Johnson, San Francisco (*Jour. A. M. A.*, Dec. 21, 1929), asserts that caudal anesthesia has been successful and without serious reaction in 150 instances and is recommended for all painful cystoscopic procedures in which more than local urethral anesthesia is needed. Caudal anesthesia plus injection of the first three sacral nerves was used for 118 perineal prostatectomies, with one complete failure and two other patients finished under light gas and oxygen. Ephedrine is suggested as a valuable drug which seems destined practically to eliminate even the mild reaction from these procedures. Spinal anesthesia has been found especially valuable as an adjunct to gas and oxygen for nitra-abdominal surgery of the lower genito-urinary tract. Reginal and spinal anesthesia will spread in popularity in proportion to the number of well-trained anesthetists who are equipped to give anesthetics in its now broadened field.

#### AMEBIC ULCER OF ABDOMINAL WALL FOLLOWING APPENDECTOMY WITH DRAINAGE

An amebic organism was found by Warren H. Cole and Milo L. Heideman, St. Louis (*Journal A. M. A.*, Feb. 16, 1929), in the pus and microscopic section of an ulcer occurring after an appendectomy with drainage, and evidence points to that organism as the etiologic cause. The most efficient and practically the only satisfactory method of treatment is said to be cautery excision of the actively growing part of the ulcer. The excision should extend at least 2 cm. beyond any red areas creeping out from the margin of the ulcer. The possibility that amebas may influence the pathologic process in the appendix in some cases of appendicitis is suggested. Unusual bodies were found in the wall of the appendix in the authors' case but they could not be identified as amebas.

#### MEASURE TONS OF SOOT IN SMOKY CITIES

Health workers have in recent years given much attention to the effect of smoky atmospheres on the health of city dwellers. To measure the amount of smoke various methods of gaging have been devised. The simplest method consists of catching the soot-fall in cups and weighing it. Ernest W. Steel tells in *Hygeia* for January some of the results of these tests.

Industrial plants are responsible for about 45 per cent of the smoke, railroads for 15 to 20 per cent more and domestic fires contribute the rest. At Pittsburgh in 1912 before smoke abatement measures were begun there, it was found that 1,000 tons of solids fell on each square mile per year. Dust determinations in the business district of Cleveland showed that in one year over an area of one square mile and 200 feet in height 20,000 tons of solids were carried through the air.

Smoke prevention apparatus not only reduces smoke, but saves fuel. At its worst it pays interest on the investment; at its best, it pays a profit.



## WASHINGTON UNIVERSITY CLINICS

### THE TREATMENT OF SYPHILIS\*

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#### 1. FACTORS INFLUENCING THERAPY

For the consideration of treatment, syphilis may best be divided into early and late stages. The clinical stages,—primary, secondary, and tertiary,—first described by Ricord, are useful designations in clinical parlance but they bear an indefinite relationship to therapeutic indications. The treatment of early syphilis is practically a solved problem but that of late syphilis is not yet upon a satisfactory basis, and certainly there is no standardized rule of thumb dosage or choice of drugs which is applicable to late syphilis. It is not sufficient to ask what drug is best for the treatment of the disease but rather it should be asked, under what conditions of the patient and the disease should each drug of proven worth be used and what dosage of the drug is indicated to meet each condition. Kolmer states: "The treatment of syphilis demands a sound working knowledge of the underlying principles of the mechanism of infection and pathology of the disease, the role of acquired immunity, as well as a knowledge of the comparative curative properties of various antisyphilitic remedies including their pharmacological and toxicological effects."

From the standpoint of pathology which bears on the choice and application of drugs it need only be remembered that the pathology of all luetic lesions, whether in the primary, secondary or most obscure lesions of the late stage, is the same. The histopathology of syphilitic lesions is relatively simple and that of the chancre in its various stages reveals practically the entire pathology of syphilis. This was first pointed out by Virchow. The stages of pathology are invasion, infiltration, resolution and scar formation. They re-enact over and over again whether in early syphilis or the latest involvement of a special organ.

*Invasion.*—The treponemata cannot penetrate the intact skin and possibly not the intact mucous membrane. When the outer cells are stripped off and the lymph spaces exposed the organisms can bore between the cells of the lymph spaces and come to rest in the intercellular spaces. The invasion of new tissues during the late stage follows the same course. Here they multiply under ideal conditions;

warmth, food, darkness, and a minimum amount of oxygen. No tissue reaction follows the initial invasion for a period of days and there seems to be the friendliest harmony between the invading treponemata and the body cells. During the invasive stage the organisms may be killed by constant and persistent arsphenamine therapy and such therapy is followed almost always by lasting good results.

If during this period, when the treponemata are acclimating to the new host, an antibody could be furnished to the body or the tissue cells sensitized to resent the presence of the invading organism, it would seem that an effective attack on the disease could be made. As yet, however, no method is known for increasing immune principles in the body adequate for aid in therapy.

*Infiltration.*—After an inactive period of a few days to a few weeks the treponemata become adjusted and acclimated to their new environment and there is suddenly a burst of activity and multiplication. The tissue elements sense the invasion and rush lymphocytes followed by plasma cells to the area in such numbers that the treponemata are literally pushed from their resting place in the lymph spaces and the round cells pack in so tightly that body cells are killed due to compression of the capillaries. If the lesion is the primary infiltration involving skin, the corium and uppermost layer are destroyed secondarily to the infiltration and an ulcer is formed. If, however, the infiltration involves succulent tissues, as of the cervix, especially so during pregnancy, there may be no ulcer for the evident reason that nutrition of the tissue is not sufficiently impaired by the round cell blockade. When an ulcer is formed most of the treponemata are confined within it and are effectively dammed from entering the deeper tissues by a firm collar of lymphocytes. Thus nature prevents access of the organisms to the tissues and incidentally has provided the greatest facility for diagnosis of the lesion by fencing off large numbers of the treponemata ready for dark field examination. Too often this excellent opportunity for positive diagnosis is ignored and even the lesion is treated locally before a dark field has been made.

During the infiltrating stage of the chancre the few treponemata that are crowded deeper into the lymph spaces by the attacking lymphocytes are carried to the inguinal glands where they meet the next resistance to their progress. These glands enlarge, due to the same sort of lymphocytic infiltration as described above. This adenopathy occurs from 8 to 12 days after the appearance of the chancre and marks the

\* Read before the St. Louis Medical Society, April 8, 1930.

earliest time that a positive Wassermann may be expected.

Acute signs and symptoms occur during the infiltration stage of late syphilis. For example, auditory and visual disturbances terminating in serious and permanent damage to hearing or sight may suddenly occur during the infiltration stage. These symptoms and the permanent damage ensuing are due to the tissue reaction and not directly to the presence of the treponemata.

Therapeutic measures during this period are highly indicated. Arsphenamine at this stage destroys not only the treponemata which are showered into the blood stream by the crowding lymphocytes but it also destroys the localized treponemata which are causing continued infiltration. Thus the infiltration collars of lymphocytes may be resolved by arsphenamine before extensive damage is done to the tissue cells.

*Resolution.*—The dense infiltration of lymphocytes and plasma cells about foci of treponemata any place in the body ceases and begins to resolve when the treponemata have been routed or killed by tissue death and drug therapy. As rapidly as the lymphocytes disperse, young connective tissue cells grow into the space previously occupied by the lymphocytic infiltration and repair the breaks in the normal tissue. It may readily be understood that the amount of connective tissue proliferation depends on the rapidity of resolution or disappearance of the lymphocytic infiltration. This introduces a nice point in the choice and intensiveness of therapeutics. If the infiltration has been extensive or in a location which involves cells vital to important function it is important to prevent the strangling of these vital cells in the scar that is forming. Rapidly growing connective tissue destroys much more tissue than slow growing connective tissue. Actively functioning body cells, muscle, nerve, bone, etc., are not encroached upon by connective tissue but a repair structure is built around such cells. Even blood supply to functioning cells which may be recent and delicately forming is nicely avoided by connective tissue cells which are young and growing. Thus to preserve the maximum reclamation value and function of vital cells it is important that connective tissue stimulation is the least possible compatible with adequate repair.

Arsphenamine and mercury doses should be moderate in amount and well spaced but incessantly continued during the stage of resolution. The purpose of therapy during this stage is evidently to lessen infiltration gradually and prevent the treponemata released into the blood stream from localizing in new sites.

*Scar Formation.*—When the young con-

nective tissue has matured and contracted to its limit the end of syphilitic pathology is reached. The pathological change and the interference with the physiological function of the involved part which results after scar formation is due to mechanical pressure of the scar. This change is permanent and does not respond to antiluetic therapy.

The scar formation is the supreme effort of the body tissues to protect from treponemata or the further invasion of any infective organism. From gummatous scars the organism may escape years later to re-enact the same sequence of processes in uninvaded tissue.

Other important factors which influence therapy are immunity, latency, and constitutional differences among individuals.

*Immunity.*—Natural immunity to syphilis does not occur but there is evidence that race stocks react differently to the infection. The negro race offers a better defensive mechanism after infection has occurred and does not as often develop lesions of equal severity to those which occur in the white race, with the possible exception of cardiac involvement.

Acquiring immunity unquestionably bears an important relation to syphilitic infection, treatment and prognosis and to the mechanism of reinfection, superinfection and to the cure of acquired and congenital syphilis. Acquired immunity after the first manifestations of the disease is an important factor in the production of latency of the disease. Immunity enhanced by the peculiar reinforcement due to pregnancy so often renders the disease permanently quiescent that pregnancy might be considered an important therapeutic factor were it not for the fact that the offspring are almost invariably infected.

While the immunity established by antibody formation is important, urgent caution is here expressed against the practice of allowing the disease to progress for a time untreated in order that antibody formation may progress. Much harm may be done by the fallacious dependence on the immune reactions to combat the disease. As yet there is no method of proved value which will increase the production of antibodies to a degree sufficient for therapeutics. Furthermore, it may be stated that the antiluetic drugs, arsphenamine, neoarsphenamine, mercury compounds, bismuth, etc., do not increase the immunity of the host. The reverse may occur and syphilis treated with subcurative doses of arsphenamine, etc., may render the patient more susceptible to the inroad of the disease by actually diminishing immunity.

The treatment of syphilis must be undertaken with the fact clearly in mind that the acquired immunity of the body is destroyed



by the treatment and that the responsibility of curing the disease rests upon the adequacy of the applied remedies. In other words, if the clinician decides to disregard the acquired immunity and proceed to treat syphilis by drugs, it must be done with the knowledge that inadequate treatment with arsphenamine, mercury, etc., will easily destroy the readily accessible large number of treponemata, but will allow those organisms which escape destruction to become arsenic fast and disseminate freely with not so much as the tissue defense reaction to curb them. Thus, inadequate treatment may actually spread the parasites in the body when given in amounts which will dissipate the chancre and adenopathy but short of complete sterilization. On the other hand, if no treatment is given dissemination will occur anyhow, although not so rapidly. There is no hope "that cellular resistance alone will extirpate the infection or hold the disease in indefinite latency." (Kolmer.) There are two choices open to the clinician; one to leave the disease alone and the other to treat it adequately in the light of all the combined experience of investigators. As for results from the first choice we have the multitudes of control cases during the years before arsphenamine was discovered. For results from adequate treatment it is realized that the best efforts may result in failure in a very small per cent of cases. Less than five per cent of well treated cases develop chronic syphilis of the nervous system and elsewhere.

It must not be presumed that adequate treatment means a huge excess of drugs given with the thought only of complete sterilization. Too much arsphenamine or other drugs may produce as great harm as no drugs at all. Arsenic may cause equal damage to that of the gumma. Local tissue changes from arsenic alone may cause thrombosis of the small vessels resulting in similar changes as those from the disease itself. Gaucher aptly observed, during the early days of arsphenamine therapy, when vigorous treatment was given that "Arsphenamine will produce in the vascular system the very conditions which we wish to avoid."

Antisyphilitic treatment cannot then be given with only the purpose of complete sterilization but requires such precision that this generation of workers will not live to enjoy a standardized method of procedure for the late stage of the disease.

*Latency.*—The attribute of latency in syphilis is one of the most remarkable phases of the disease. For long periods of time the disease may become clinically quiescent, giving as its only evidence positive changes in the blood, and even this reaction may in a small per cent

of cases become negative. Very probably immune reactions play an important part in latency. It may be enhanced by pregnancy to such a degree that the disease never becomes clinically active or progressive during the life of the patient. Both Colles and Profaeta erred in the formulation of their laws due to lack of data concerning the latency of syphilis. It is now well known that the syphilitic child of a mother who does not give evidence of syphilis cannot infect its own mother because she already has the disease. Also that the apparently nonsyphilitic child of a syphilitic mother cannot be infected because the child does have syphilis. The quality of latency may be transmitted to the offspring and show no signs of activity for years or even until adulthood is reached.

Usually the latent stage becomes active again after long periods of inactivity. This phenomenon of recurrent activity after long periods of quiescence is nearly as remarkable as latency. Since the quality of latency cannot be depended upon to remain permanent and does not protect the offspring from the disease, syphilis should be treated regardless of its apparent harmlessness. True enough, treatment may be contraindicated because of senility or advanced pathological tissue changes. Most latent syphilis should then be considered as late syphilis and treated as such unless the effects of therapy may be worse than those of the disease.

*Constitutional Differences.*—The constitutional and systemic differences among individuals influence the course of the disease and the amount of treatment required for its eradication and arrest. The ability on the part of the patient's constitution to react to the infection and to the treatment presents responses to treatment which are as varied as if the treponemata were of different strains and virulence, although there probably is no difference in the virulence and no difference between strains of treponemata. "As stated by Schindler, a man still in the secondary stage of syphilis required ten times as much treatment to change his Wassermann reaction to negative as did his wife, infected by him and also in the secondary stage." (Kolmer.) Also the presence of other pathology in the body must influence therapy. The syphilitic may have and more frequently does have other pathology than the average individual. Syphilis confers no immunity to infection by other pathogenic organisms. The stage of progress of the disease itself requires different amounts and kinds of treatment. The abortive treatment requires an intensity and amount of

treatment that would be as absurd as it would be fatal to a patient with advanced cardiovascular syphilis.

## 2. DRUGS USED TO COMBAT SYPHILIS

Therapeutic agents are available in sufficient numbers for fitting the patient and the disease with appropriate remedies, and with rather definite assurance as to expected results. The comparative treponemicidal activities of various representative drug groups are as follows: (1) Arsphenamine and silver arsphenamine are of equal and greatest treponemicidal activities; (2) neoarsphenamine and sulpharsphenamine are equal and about two-thirds as active as arsphenamine. Neoarsphenamine varies in activity with the brand and often with the "batch"; (3) bismuth compounds are about one-fifth as active as arsphenamine; (4) tryparsamide is about one-sixth as active as arsphenamine; (5) mercurial compounds have the least treponemicidal activity and vary greatly, due to several factors such as ionization and dissociation; these factors are not constant for the same compound used at different times and sites of injection in the same patient; (6) iodides have no treponemicidal activity but serve as invaluable adjuvants to the treponemicides in the late stages of the disease.

Arsphenamine is the best treponemicide known at present. It is the most stable of the trivalent organic arsenicals and is of equal potency when obtained from any good source of supply in America or Europe. It is more slowly eliminated than neoarsphenamine or sulpharsphenamine and penetrates the nerve tissues better than the above two drugs. It is highly indicated as the drug of choice in the abortive treatment of syphilis and the treatment of all early and late syphilis in persons of robust constitution in whom toxic reactions do not occur. The physician is fulfilling his responsibility to the fullest degree in treating cases with arsphenamine where energetic treatment of greatest and most constant treponemicidal activity is expected.

Arsphenamine is more toxic than neoarsphenamine and is more likely to produce immediate and early toxic reactions because of colloidal reactions in the blood as well as by its greater vasculotoxicity. It is thus more dangerous than neoarsphenamine in debilitated or old patients in whom there are various pathological changes and foci of infection in the organs. It is more slowly eliminated and not well tolerated by impaired kidneys. It tends to produce greater irritation of the veins and is possibly more dangerous in advanced neurosyphilis because of its greater vasculotoxicity. It is certainly contraindicated in ad-

vanced cardiovascular syphilis because of its toxicity and tendency to produce local tissue reaction, thrombosis of the small vessels and Herxheimer reaction at the site of lesions in the aorta, neural system, or the liver. It is more hepatotoxic causing hepatitis and jaundice more severely than neoarsphenamine.

Dermatitis is more frequently caused by arsphenamine than by neoarsphenamine but less frequently than by sulpharsphenamine.

Arsphenamine is more difficult to administer than neoarsphenamine or sulpharsphenamine and many deaths have been caused by failure to neutralize or alkalinize the solutions. It requires more apparatus and more careful procedure to prepare it for use.

Arsphenamine is not the drug of choice for patients who must attend daily vigorous work without interruption. Patients receiving it should be able to rest 12 to 24 hours if necessary to overcome minor reactions. It is the drug of choice for treatment of syphilis by those who insist on the best known treatment for cases for which it is applicable.

Silver arsphenamine has theoretically the same indications as arsphenamine but practically it has not displaced arsphenamine. Possibly it penetrates tissue better, especially nerve tissue. Dr. Paranaugian, of the Bellevue clinic, uses it routinely for provocative Wassermann tests on adults. Many clinics use it with the other arsenicals in neurosyphilis. It may be used to advantage with tryparsamide in paresis. Other indications are found in those patients who react poorly to arsphenamine. It is much easier to administer than arsphenamine because it requires merely to be diluted with distilled water 0.1 gram to 20 cc. of solution. Small doses may be given directly by syringe but large doses require such dilution that the gravity method is best.

The remote possibility of producing argyria limits the inclination of clinicians to use it in white patients.

Neoarsphenamine is undoubtedly the most widely used arsenical and has accomplished more for adequate antiluetic treatment the country over than all other drugs combined. It has put antiluetic treatment in the hands of all clinicians and removed the treatment from the hands of specialists. Its ease of preparation and the fact that concentrated solutions may be injected with little danger of toxicity make it the drug of choice of most clinicians. It has definite advantages over arsphenamine in debilitated, malnourished, and senile patients but does not, however, replace the older drug in all cases.

Neoarsphenamine is about one half to two thirds as treponemicidal as arsphenamine. Its



activity varies somewhat when obtained from different sources and to some extent from different batches from the same manufacturer. Kolmer states that: "Today there exists a remarkable variation in the parasitocidal effects of different brands of neoarsphenamine prepared in different laboratories and to some extent with different batches from the same laboratory. I have repeatedly found samples on the market unable to cure syphilis of rabbits in doses as high as 0.045 gram per kilogram whereas the average single curative dose should be 0.020 gram per kilogram body weight. It is true that repeated doses may dissipate the obvious lesions of syphilis in human subjects and relieve some of the symptoms, but I doubt that the effects will be permanent and I believe that a high incidence of tertiary syphilis will be observed in the next ten to twenty years among syphilitics who believed themselves cured by a series of neoarsphenamine . . . . manufacturers of neoarsphenamine are laying entirely too much stress upon the flash solubility and low toxicity of their products; more attention should be given to their curative activity . . . . I regard the situation as a serious one because I believe physicians and patients are not infrequently deluded."

Sulpharsphenamine is more treponemicidal than neoarsphenamine when it is given intramuscularly and less active than neoarsphenamine when given intravenously. It possesses the advantage of intramuscular administration while both arsphenamine and neoarsphenamine are too irritating by this route. Neoarsphenamine is used however to great advantage in small intramuscular doses for children. Sulpharsphenamine is much more likely to produce dermatitis than either arsphenamine or neoarsphenamine. It is never indicated by the intravenous route and since its only claim to eligibility among therapeutic agents is its adaptability to intramuscular use it will probably be superseded soon by a less toxic compound, such as bismuth arsphenamine sulphionate.

Mercury is one of the most ancient remedies used against syphilis and it still retains a place of great importance. Its use is still largely empiric. Knowledge of its absorption and action is still quite incomplete. It is a powerful treponemicide but is far too toxic to use in doses which produce a rapid treponemicidal effect in the body. It is probably impossible to administer enough mercury to cure syphilis without the aid of the arsenicals, although if it could be given in one half the permissible dose of arsphenamine it would be equally efficacious. "It is true that spirochetes disappear from lesions with healing of the latter, but the effects (of mercury) are not rapid enough in the majority of cases to prevent some of the organ-

isms escaping destruction with subsequent localization in the internal organs and the production of chronic lesions. For this reason mercury is not the remedy of choice today for the treatment of early syphilis; the trivalent arsenicals arsphenamine and its substitutes are the remedies of choice at this stage with bismuth second and mercury third." (Kolmer.) As to the action of mercury in late syphilis, Kolmer suggests that it accumulates in syphilitic tissues and exudates as do iodides in any syphilitic or nonsyphilitic exudate. Thus it may reach a concentration in the syphilitic tissues which is treponemicidal without at the same time reaching a toxic concentration for the kidneys. The stored accumulated mercury is still ionizable and therapeutically active. Thus its activity is continued for long periods of time while that of arsphenamine is relatively brief. Stokes speaks of arsphenamine as acting like a broom that sweeps, whereas faithful old mercury takes up residence in syphilitic foci and is in no hurry to leave and finally gains entrance with death to the treponemata.

Mercury is most efficaciously given by two methods,—hip injections of the succinimide, bichloride, or salicylate, and by mouth in the form of bichloride or as mercuric or mercurous iodides. The two methods should be used simultaneously at least until saturation is reached. The method of inunction offers an admirable means for administering mercury to patients who object to hip injections or who may have gastric disturbances following mercury by mouth. The method is somewhat dirty, requires more time than hip or mouth administration and if not carried out conscientiously and energetically it is worthless. Experiments show that about three weeks' treatment is required to reach a constant rate of elimination and that it is eliminated for about forty-five days after inunctions have been stopped.

Bismuth compounds are the most recent addition to antiluetic remedies and are replacing mercury compounds in the routine treatment of syphilis in most clinics of this country and England. The activity of both bismuth and mercury is probably due to the metal ion. Bismuth is less than one twentieth as toxic as mercury thus allowing for a dose which has a chemotherapeutic index at least five times higher than mercury. Weight for weight bismuth is only about one tenth as active as mercury but the much larger dose offsets this difference in activity. Several good bismuth preparations are on the market which vary as to the available bismuth. The dosage should be determined which contains about 0.2 gram of bismuth and this dose repeated until about 2 grams are given in a course. Potassium bismuth tartrate, bismuth salicylate, quinine bismuth iodide and bismuth formitate are

a few of the favorite preparations. It is too early to recommend the soluble bismuth preparations for complete reliance but the soluble and fat suspended insoluble preparations may be given together insuring sufficient bismuth concentration together with any advantage which the individual worker may feel is due to the soluble preparation. Many nearly worthless bismuth preparations are flooding the market.

Bismuth arsphenamine sulphonate (bismarsen) must not be confused with other bismuth compounds in the treatment of syphilis. This important compound, originated by G. W. Raiziss, director of the Dermatological Research Laboratories, represents an attempt to combine arsphenamine and bismuth in one preparation. Extensive use of this preparation has been made but it is hardly beyond its experimental stage and is not ready to be incorporated in treatment schedules either to take the place of other bismuth compounds or of arsphenamine. Its indication should not be confused with the well established bismuth compounds used as adjuvants to arsphenamine.

Tryparsamide is weakly treponemicidal compared with the above mentioned trivalent arsenicals. It is about one sixth as active as arsphenamine. Its use in neurosyphilis gives it a very important place. In early or usual late syphilis it is of no particular use. Damage to the optic nerve (in 7 to 20 per cent of cases) (Kolmer) is its most dreaded sequel. This danger is probably overemphasized and is slight in comparison to the progress of the disease itself.

Ophthalmoscopic examinations and perimetric measurements of the visual fields during treatment warns the clinician of impending danger. Tryparsamide can be as easily administered as neoarsphenamine and should be used by every clinician who treats neurosyphilis. There is no exact knowledge as to the length of a course of treatment with tryparsamide. Some clinicians recommend a course of eight weekly injections, combined with mercury, bismuth, silver arsphenamine, sulpharsphenamine or neoarsphenamine, followed by a rest period of a few weeks. There is no indication for the rest period from the standpoint of the drug action and possibly it should be continued, 2 to 3 grams per week for a year or more. Some clinics have continued therapy for 70 to 100 weekly injections with no indication of an upper limit and with continued improvement of the patient.

Iodides of potassium and sodium are invaluable adjuvants to the treponemicides in the treatment of late syphilis. Iodides are not treponemicidal and thus are not useful in the

beginning of the treatment for early syphilis. They do however so profoundly aid in the resolution of exudates and pathological depositions in the soft or bony tissue that the impression is given that iodides are treponemicides. The effect of iodides is spectacular. They are not specific for syphilitic exudates but cause resolution of tuberculous and leprous residues and those from infectious granulomata, such as from actinomycosis, blastomycosis, sporotrichosis, etc.

When antiluetic treatment is started within eight weeks after the primary lesion there is no indication for iodides because there is no work for them to perform. After a few months' treatment it is well to add iodides to aid in reaching those treponemata which have escaped destruction and have become buried and inaccessible to arsphenamine. In late syphilis iodides should continue with other treatment. Periods of rest should be interspaced because intermittent iodide therapy is best in any condition for which iodide is indicated.

### 3. TREATMENT PROCEDURES

*Prophylaxis.*—The methods of treating syphilis after it is once entrenched in the body have occupied the attention of many eminent investigators. Some of the most difficult chemistry has been applied and compounds have been produced which are as perfectly paritotropic for treponemata and as little organotropic for the human tissues as it is possible to conceive from present knowledge. The methods of preventing infection have required no investigation above that of the empirical use of soap and water and simple disinfectants. The treponemata are easily killed or attenuated by antiseptic measures. Reliable chemical prophylaxis was perfected even before the etiology of the disease was known. Few pathogenic organisms require such specialized and constant environmental conditions in order to survive. The treponemata must be kept warm, moist and protected from direct sunlight and abundant oxygen. There probably is no resistant form whereby the organism may weather adverse cultural conditions comparable to the spore stage of other organisms. They must be literally inoculated by direct and intimate contact, mucous surface to mucous surface, in order for them to maintain for syphilis its important place as a leader in the annals of plagues. Even after inoculation under the most favorable circumstances the treponemata lie quiet and inactive for a period of days before they become acclimated to their new host. It is true that infection may follow by indirect contact and that the organisms may be kept alive for a period of hours if moisture is furnished but indirect



contact alone could not even maintain the existence of the disease. It is not inferred that the organism is excessively tender but that simple prophylactic measures can be easily applied so as to protect from infection nearly completely.

The application of simple prophylactic measures for the control of syphilis is nearly impossible to apply because of the stigmatic association of the disease with sexual relations which is inherent in society and actively sponsored by purists. The sanitarian is constantly hindered in his work by well meaning moralists who possess a perspective distorted by abstraction. It is necessary to protect the patient by keeping his secret from a large class of people who are active and deterring influences to social welfare.

People continue to contract the disease as from the beginning of its prevalence. They continue to devote the resources of mind, body and property to the treatment of the disease with little hope of freedom from the scars of body and spirit. The disease is handed on to children and its atavistic propensities continue to furnish choice material for ecclesiastic harangue. The objections to the adoption of prophylactic measures against syphilis are based on two main beliefs that permeate society. They are, (1) that venereal diseases are a divinely imposed punishment for immorality, (2) that the fear of venereal disease deters from vice. Therefore, it is contended that by removing this fear we actually encourage vice. Though it may seem idle to consider such views, it is important that the sanitarian should not ignore factors that hinder public health.

Venereal prophylaxis\* has been in general use in the United States Army and Navy since 1908 and since 1912 the use of prophylaxis has been compulsory in the army. The efficacy of prophylactic measures as used in the army is an inspiration for a beginning towards the work in civil practice although it is certain that venereal prophylaxis cannot be applied in civil life with the same prospect of success as in the army. This is largely because men are so little deterred from intercourse by the fear of infection that they will not avail themselves of prophylactic measures which are made accessible. Snow concludes: "... prophylactic measures can succeed in only a percentage of cases in which adequate instructions have been given, and the individual has the intelligence to apply properly the prophylactic immediately or within a few hours after exposure. . . . It seems apparent that prophylaxis can wisely be made use of only under the advice of physicians who have an opportunity to observe each

individual until the danger of infection is passed."

*General Measures.*—The general measures important to antiluetic therapy are those that apply to most ills. The general laws of hygiene should be carefully obeyed by the syphilitic. An understanding of the mode of living, occupation and social adjustment of the patient should be understood by the physician. If the physician is too busy or sees large numbers of patients in clinic practice the study of the home environment should be made by a competent social worker. The study of the adjustment of the patient to his environment is perhaps more important than the injection because if he goes home to relatives who are infected the effort in treating the patient constitutes but a fraction of the public health problem.

The factor of mental hygiene of the syphilitic is perhaps more important and more neglected than that in most types of illness. The anxiety, pains and sorrows which influence the convalescence of all types of patients are more neglected and less studied in syphilitic patients than in other types of patients. The disease has long been weighted with stigmata and society would have the patient feel that the disease is punishment for its method of contraction. The patient feels that his battle is half lost when it is found out that he has syphilis. Prophylactic treatment and preventive measures have been denied him and are apparently considered unspeakably sordid topics. Only after the disease has been contracted does organized endeavor start to consider the disease.

The majority of intelligent syphilitic patients are subject to mental depression and excessive worry regarding the disease. This is not typical of the pathology of the disease but is due to the reputation of it. A typical instance is portrayed by a woman patient who came to a clinic because of a sore on her tongue which proved to be carcinoma. When she was told that it was cancer she said, "Thank goodness it is not syphilis." As Collins has stated, the disease may be cured but it may be impossible to cure the syphilitic "scars of the spirit." It is important that the physician combat these scars by suggestion and a sanely optimistic outlook.

*Oral Hygiene and Foci of Infection.*—The mouth and other sources of infection require attention. Delaying dental work or other operative procedure until a patient has a negative Wassermann is an absurd injustice. Even major operations, if indicated, should not be delayed thus endangering the patient's life due to the opinion that syphilitics cannot undergo operations. It is true that trauma localizes luetic infection and if the patient has not had treatment an operative procedure may exacerbate the disease at the site of operation.

\* Riggs: A Study of Venereal Prophylaxis in the Navy, J. Social Hyg., 3:299, 1917.

After two courses, and if necessary after one course of treatment an operation, and certainly dental work, may be carried out. It is important that the teeth should be carefully inspected, repaired, extracted, filled, or cleaned as the case may require, when the patient is on arsenic, mercury or bismuth treatment. The dentist should be apprised of the diagnosis so that proper sterilization of instruments and protection of his own hands may be intelligently carried out.

*Abortive Treatment.*—By the abortive treatment is meant an attempt to eliminate early syphilis before it has had a chance to reach the deeper tissues and produce a generalized infection. This may be successfully accomplished and in cases of suspected infection it should proceed before the appearance of the primary lesion, if the suspected infection is not more than two weeks old. If the suspected infection is more than two weeks old, it is probably best to wait for the primary lesion or a positive blood in order not to institute intensive treatment needlessly.

Experience has taught that syphilis can be eradicated by arsenic compounds alone if taken early enough. Some cases if taken within 24 hours after exposure may be cured by a single dose of arsphenamine but this is risky. Kolmer's schedule for abortive treatment indicates the required intensity of treatment following definite time intervals after exposure. Three days following exposure 2 doses of arsphenamine, .4 to .6 gram, with a three day interval intervening, is sufficient to eradicate the organism. Four to seven days following exposure 3 doses are required and eight to fourteen days following exposure 4 doses at five day intervals. The corresponding number of doses for neoarsphenamine of .4 to .6 grams are 3, 4 and 6 respectively. After a fourteen day exposure Kolmer states: "I believe abortive treatment is inadvisable but the primary lesion should be awaited (or a positive serology) and intensive treatment given as for early syphilis."

Another group of cases often included under the abortive treatment classification are those that have primary lesions less than ten days old. These cases require much more intensive treatment than the true abortive ones. Under conditions that show the chancre is less than ten days old, the Wassermann negative, no inguinal adenopathy but with treponemata present in the dark field, the case may be cured without appearance of the secondary rash and without the Wassermann ever becoming positive. Such cases require two courses applicable for robust patients.

*Adequate and Appropriate Treatment Schedules.*—Fortunately, from the standpoint of drug choice and intensity of treatment, most

early syphilis is seen early in life when the patients are in the best physical condition. One can more truly treat the disease and ignore the patient in young and otherwise healthy individuals. Intelligently intensive treatment is indicated in early syphilis. Such authorities as Fordyce, Rosen, Moore, Keidel, Stokes, Gennerich, Ormsby and many others have laid particular emphasis upon the thorough treatment of early syphilis as the best means for preventing neurosyphilis.

The treatment schedules of various leading clinics are slightly different but there is general agreement that treatment must be thorough. Differences are present because there are other factors to consider besides mere adequacy of dosage required to exterminate treponemata. It has been shown that too much and too frequent dosage results in serious side reactions, such as dermatitis, jaundice, Herxheimer reactions of the viscera and skin. Furthermore, one may undo all the good from therapy by ill-advised rest periods during which time the patient receives no therapy. The organism during these rest periods may make serious progress. They not only become tolerant to arsenic but show increased activity and increased tendency to involve the nervous system. Such conditions as neurorecidives or neurorecurrences are even more troublesome to cope with than the original infection. Thus the study of the dosage of drugs and, more important, their proper spacing and length of continuation, is complex and no definite decision has been made as to a uniform procedure. The enormous effort expended since the advent of arsphenamine and other arsenicals has shown much that is of value.\*

The number and spacing of doses in each course of arsenicals are not as important as the total number of doses used in the treatment of a case. Thirty doses or more should be given in nearly all cases of well established infection. The amount given at each dose may best be based approximately on body weight, viz., 0.1 gram arsphenamine per 40 pounds of body weight. Large single doses are never indicated, and in syphilis of the cardiovascular system and special tissues small doses are indicated. In general practice the usual rule of beginning the arsenic course with a small dose is highly advisable although in one clinic of high repute the initial dose is one to two tenths grams larger than subsequent doses. The question of rest periods is probably the most mooted at present. It is becoming quite a general opinion that absolute rest periods during treatment for vigorous pa-

\* Moore, Cole, Schamberg, Solomon, Wile, and Stokes: The Management of Syphilis in General Practice, Reprint 13 from Venereal Disease Information, 10: No. 2, (Feb. 20) 1929.



tients is a mistake and merely allows for recrudescence of the disease. Stokes states: "No complete rest intervals should be permitted until at least a year after the last symptom and sign has disappeared. . . ." Even the interval required for saturation with the adjuvant drug is believed to be a serious loss of time and many syphilologists are overlapping the last arsphenamine or neoarsphenamine injections with bismuth or mercury in order that no interval occurs during which there is a lapse in active treatment. The beginning of the next arsenic course follows then immediately after the last dose of bismuth or mercury. Moore believes that if this plan of treatment could be applied to every case of early syphilis the incidence of asymptomatic neurosyphilis, and in all probability that of clinical neurosyphilis, might be reduced to an absolute minimum. Judging from his data the present level of 20 to 25 per cent of clinical neurosyphilis might be reduced to five per cent.

A communication from Colonel L. W. Harrison, director of the venereal disease department of St. Thomas Hospital, London, indicates his view on this subject. To quote: "I am a strong believer in the simultaneous use of Hg. or Bi. with the arsenical in the treatment of early cases, partly because I think the therapeutic effect is better, but mostly because I believe and think I can prove, that clinical neurorecurrences are far less frequent by this method. In the last nine years amongst the early cases treated either privately by myself or in my clinic at St. Thomas' I have knowledge of only three clinical neurorecurrences, which is better than can be shown by clinics where early cases are treated first with a course of As., then with one of Hg., or Bi., and so on. In the early days of '606' there was a big increase in clinical neurorecurrences and it occurred in early cases treated only with '606.' Certainly a large number had had only one or two doses of '606' but prior to that there had been plenty of cases which had received little or no treatment and clinical neurorecurrences in the early stages of syphilis was very uncommon before '606' was introduced. I know that a clinical neurorecurrence can be cleared up with arsenobenzene, which seems to be an argument against my views, but the As. has to be pushed in these cases more than is done in the routine treatment of early cases."

The bearing of toxic reactions or untoward manifestations of antiluetic drugs on treatment procedures is too important to be discussed briefly. For the preparation of the patient whose disease involves vital tissues it is most important that no schedule start with a large dose of an arsenical if with an arsenical at all. Even bismuth after eight years of

proven worth may be too rapid in its attack on severe cardiovascular disease to be employed preceding the first course of neoarsphenamine. Iodides in increasingly large doses or mercury succinimide may prove safer for preparation of the patient in seriously advanced involvements in which temporary repair is the most to be expected. After a month or more of preliminary treatment neoarsphenamine in small doses (.2 to .4 gram) may follow.

In conclusion, it may be said that modern therapy has driven the profoundest problems of treatment and diagnosis beneath the skin and that syphilis belongs to no one specialty in medicine but to all. Increased knowledge has removed idolatrous worship of the Wassermann test and allowed for intelligent consideration of the patient and his disease which may vary in its manifestations as widely as the combined pathology of several diseases.

#### PRESENT STATUS OF CONVALESCENT SERUM THERAPY

The impression of W. H. Kellogg, Berkeley, Calif. (*Jour. A. M. A.*, Dec. 21, 1929), gained from an analysis of some published reports, is that convalescent serum is of value in the treatment of poliomyelitis, and that its use should be encouraged and extended. Several facts seem fairly conclusive from the literature studied. These may be stated as follows: Whatever benefit may be expected from convalescent serum can be realized only when it is given in the preparalytic stage. The intrathecal route would seem to be as safe, and certainly as effective, as less direct methods. The intramuscular or intravenous route is possibly as effective as the intrathecal, excepting for a certain amount of delay in reaching the spinal fluid with antibodies, but further studies on this point are desirable. The prophylactic use of convalescent serum given subcutaneously or intramuscularly in time of epidemic, as suggested by Flexner, is amply backed up in its rationality by experiments with monkeys and is probably a valuable preventive measure, albeit limited in application by difficulties in obtaining serum. Further information on the value of convalescent serum is needed and, in the prosecution of studies, the prime requisite is a real control represented by a series of untreated cases in every respect the same as are treated cases. This similarity must include time, stage of the epidemic, and clinical type. Every published study should give full details as to how and why certain cases were selected for controls. Published studies on the effect of convalescent serum should exclude all abortive cases on account of the uncertainty of diagnosis. Characteristic symptoms of central nervous system involvement should be present, and cases in which spinal fluid examinations are not made should be tabulated separately. In view of the widespread immunity to poliomyelitis indicated by the low attack rate, the possibility that the so-called normal serum of young adults may frequently carry immune bodies in serviceable amounts, and the difficulties in the way of securing an adequate supply of known convalescent serum, it is suggested that an experiment with normal serum would be worth while.

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AUGUST, 1930

## EDITORIALS

### ST. LOUIS HAS LOWEST INFANT MORTALITY RATE

"The crude death rate of a town, city, state, or country is not a reliable yardstick for comparing the health conditions of various communities. A much more reliable index of sanitary progress in a community is the infant death rate," say Drs. Wm. H. Guilfooy and Shirley W. Wynne, of New York, eminent authorities on vital statistics.

Based upon this statement, St. Louis may well be proud of her health record in 1929 for the report of Dr. Max C. Starkloff, health commissioner of St. Louis, to Director of Public Welfare Salisbury, shows the infant mortality rate in St. Louis was the lowest among the larger United States cities. The rate shows that only 57.2 of every 1,000 children born last year died during the first year of life. This is within .9 of the lowest infant death rate ever recorded in St. Louis, and 4.4 lower than that of 1928. The city ranking next lowest is New York City with a death rate of 58.5. Chicago comes third with a rate of 60 and Pittsburgh has the highest rate in this group of cities with a percentage of 75.8.

The total number of deaths for all ages reported in St. Louis last year was 11,913, of which 10,958 were residents of the city. The death rate was 13.9 per 1,000 as compared with 14.2 in 1928.

Leading again last year in the cause of death was organic heart disease, causing approximately 25 per cent of the total number of deaths. However, there are 105 fewer deaths attributed to this cause in 1929 than in 1928. Ninety per cent of these deaths occurred among persons over 50 years of age.

Cancer was second in the cause of death proving fatal to 1,141 during the year as compared with 1,113 in 1928. This was 9.5 per cent of the total number of deaths. Pneumonia caused 8.7 per cent of the entire mortality but showed a decrease as compared with the preceding year.

Deaths due to external causes decreased 24 during 1929 and amounted to 7.9 per cent of the total mortality. Deaths from automobile accidents showed a reduction of 14.6 per cent.

Tuberculosis ranked fifth in cause of death with 6.9 per cent of the total. Acute communicable disease continued low last year with the diphtheria death rate 7.4 per 100,000, the lowest ever recorded in St. Louis, the report states.

### MEDICAL DIRECTOR FOR ST. LOUIS CITY HOSPITAL

For a number of years it has been apparent that the methods of administration of St. Louis City Hospital have prevented the officials in charge and the medical staff from giving the utmost of their ability to the care of the patient.

The hospital was established in 1845 and its affairs were administered by a superintendent who was also physician in charge of the inmates. Thus the superintendent was compelled to supervise the care and treatment of patients and in addition was responsible for maintenance routine. In 1896 the hospital was totally destroyed by the tornado but was shortly rebuilt and the bed capacity increased. Even though the sick population at that time was only 450 the duties of the superintendent should have been separated. Since then the methods of treating the sick and the construction and maintenance of hospitals have grown vastly more complicated; but the dual function of the superintendent of the City Hospital has continued although its defects have been fully recognized for many years by officials and the staff. From time to time propositions have been advanced to modernize the conducting of the institution but no plan seemed to arouse sufficient support to bring about a change.

Soon after his appointment as hospital commissioner, Dr. Curtis H. Lohr revived the proposition of reorganizing the personnel of the City Hospital so that the superintendent should have the responsibility of all administrative duties in the conduct of the institution excepting those appertaining to the medical care of the inmates, and the appointing of a medical director whose only duties would be to supervise the care and treatment of the patients. In the fall of 1929, Dr. Lohr called the visiting staff into conference and laid his plan before them. The staff immediately approved the proposition and promised to cooperate with Dr. Lohr in its consummation. The



St. Louis Medical Society also offered its co-operation.

It was therefore with a considerable degree of satisfaction that these groups saw the passage by the Board of Aldermen of an ordinance that became effective on May 22, creating the position of medical director of the City Hospital. The purpose of the ordinance is to modernize the Department of Public Welfare which has charge of all the hospitals and eleemosynary institutions conducted by the City of St. Louis. The activities of the medical director will come under the jurisdiction of the visiting staff and the hospital commissioner. The duties will consist of the reorganization and supervision of the resident staff in order to attain a professional and scientific standing for the City Hospital equal to similar institutions in other large cities.

Hospital Commissioner Lohr well classified the creation of the office as "the most decided step forward in the hospital division for the past ten years." In a resolution highly indorsing the passage of the ordinance the St. Louis Medical Society made the statement: "It is of the utmost importance that a physician of unusual medical ability and much experience in hospital organization and graduate teaching be obtained for this position," and requested the hospital commissioner not to appoint the medical director until the candidate for the position had undergone an examination by a committee to be appointed by him and had been indorsed by the conference committee of the visiting staff. The visiting staff is made up of three groups of physicians all of whom are appointed by the hospital commissioner. One group is composed of physicians recommended by the Washington University School of Medicine, one of physicians recommended by the St. Louis University School of Medicine and one of physicians selected by Commissioner Lohr from among those physicians who are not affiliated with any medical school. Dr. Lohr readily acknowledged the wisdom of the suggestion offered by the St. Louis Medical Society and promised to be governed in his selection of the medical director by recommendations of the conference committee.

Commissioner Lohr has appointed the examining committee consisting of the following: Dr. David Barr, professor of medicine at Washington University; Dr. Charles H. Neilson, professor of medicine at St. Louis University and former president of the St. Louis Medical Society; Dr. W. C. G. Kirchner, former superintendent of the City Hospital; Dr. Cleveland H. Shutt, former hospital commissioner and former president of the St. Louis

Medical Society; Health Commissioner Starkloff; and Hospital Commissioner Lohr.

In addition to creating the position of medical director for the City Hospital the ordinance provides for an increase of approximately 100 per cent in the medical staff of the City Sanitarium (mental diseases), an anesthetist for City Hospital No. 2 (colored), two additional bacteriologists for the Snodgrass Laboratory, and permits the consolidation of the Central Dispensary with the City Hospital, an arrangement that will eliminate much overlapping in duties and responsibility and give the house staff much needed experience in outpatient work. The ordinance also creates the position of assistant hospital commissioner.

The City Hospital was created by ordinance July 10, 1845, and completed in 1846 accommodating about ninety patients. In 1856 the building was totally destroyed by fire. A new building and extensions were completed the following year and large additions were again made in 1874. Following the total destruction of the hospital by the tornado in 1896 the hospital was again rebuilt and fireproof material was used and since then new buildings have gradually been added and old buildings improved and enlarged. The bed capacity is now 900 with an average of 800 patients daily.

#### TAXATION PLAN OF THE MISSOURI SURVEY COMMISSION

With the approach of the primaries when candidates for the legislature and other political offices will be nominated the Missouri Survey Commission is endeavoring to arouse the interest of citizens in its plan to adjust the method of taxation in the state so as to remove many of the inequalities existent in the present system.

The report of the Commission on the tax survey is voluminous and comprehensive so the Commission is preparing to issue several pamphlets explanatory of the effect of the plan upon the industries, including farmers, the schools, the state institutions, as well as upon the individual.

The plan of the Commission provides that tangible property, which has been bearing almost the entire burden of taxation in the state, shall be in part relieved and that intangible property, hidden wealth which has in the past almost entirely escaped taxation, shall begin to do its part toward the support of the state's institutions and agencies.

"Banks, farmers, small business men and home owners have been hardest hit by these conditions of unequal taxation," says the Commission in a pamphlet recently issued entitled "What the Survey Commission Plan Means."

The Commission believes that these people will be the first to benefit under the proposed plan but "big business will benefit, too, through the restoration of prosperity to the state as a whole by a just system of taxation."

The question of taxation is one that affects every physician and therefore he should interest himself in the plan of the Survey Commission and arrive at a conclusion as to what attitude he will assume toward it. As a leading citizen in his own community his opinion will be sought by others whose analysis of the subject will not be as intelligent as his own and whose action will doubtless be determined by the physician's conclusion.

The Missouri Farmers' Association, said to be the largest farm organization in the state, is supporting the plan of taxation proposed by the Survey Commission and the executive committee of the Missouri Farm Bureau Federation recently gave its approval to the plan, while John F. Case, president of the Missouri State Board of Agriculture, has announced his support of the program in an editorial comment in the *Missouri Ruralist* of which he is editor. The Missouri Farmers' Association has sent a questionnaire to every candidate for the legislature asking whether the candidate, if nominated and elected, will support laws to put the plan of the Survey Commission in effect. Other organizations, it is said, have approved the plan, the only organization opposed to it as far as we have been able to learn being the Associated Industries.

In addition to the pamphlet "What the Survey Commission Means," two other pamphlets will soon be issued, viz., (1) Tabulation of Tax Effect on Each School District by Counties, (2) Amount of Additional Funds That Will Accrue to Each District. The Commission is fully convinced that the state institutions will be properly provided for if the plan it proposes is put into effect and that better educational facilities for the youth of the state can be supplied, which will mean better schools in the rural districts with less cost to the individual district.

#### DETROIT SESSION OF THE A. M. A.

Paramount in a medical career in the United States is the presidency of the American Medical Association. Eighteen men now living enjoy this honor and at the Detroit session, June 23 to 27, a medal to be worn on official occasions was presented to each of them by the Association. Dr. Edward B. Heckel, Pittsburgh, chairman of the Board of Trustees, made the presentation.

The medal bears on one side a profile of Aesculapius, the Greek god of healing, and a

rod and serpent, encircled by the words "American Medical Association Founded 1847." On the reverse side appears the name of the recipient and the year of his presidency, with a symbolic representation of healing herbs. Those receiving the medals and the dates of their presidency were: William Williams Keen, Philadelphia, 1900-1901; Frank Billings, Chicago, 1903-1904; William James Mayo, Rochester, Minnesota, 1906-1907; William Henry Welch, Baltimore, 1910-1911; Rupert Blue, United States Public Health Service, 1916-1917; Charles Horace Mayo, Rochester, Minnesota, 1917-1918; Arthur Dean Bevan, Chicago, 1918-1919; Alexander Lambert, New York, 1919-1920; William Clarence Braisted, United States Navy, 1920-1921; Hubert Work, Washington, D. C., 1921-1922; George Edmund de Schweinitz, Philadelphia, 1922-1923; Ray Lyman Wilbur, Stanford, California, 1923-1924; William Allen Pusey, Chicago, 1924-1925; William David Haggard, Nashville, Tennessee, 1925-1926; Wendell Christopher Phillips, New York, 1926-1927; Jabez North Jackson, Kansas City, Missouri, 1927-1928; William Sydney Thayer, Baltimore, 1928-1929; Malcolm La Salle Harris, Chicago, 1929-1930.

Many interesting and valuable papers were read in the scientific sessions. Among new discoveries and theories brought out were that eyestrain is often the result of nervousness; the constant control of emotions throws extra stress on the heart and has caused its deterioration in civilized man; childbearing has no effect in rheumatic heart disease; babies allowed to eat consistently what they like thrive better than babies fed to order; fracture can be set so that frequently a patient can walk away from the operating table; uroselectan, a newly discovered dye, makes the kidneys opaque to the X-ray when injected into the veins; actual organic disease may result from mental disturbance.

The Council on Medical Education and Hospitals reported on an experiment of assigning third and fourth year students to practitioners during summer vacations for practical experience, suggested in a resolution introduced by the Missouri delegates at the Portland session in 1929. The Council said the plan is being tried by the University of Wisconsin Medical School but has been in operation for such a short period that no opinion regarding its value could be expressed at that time.

The use of heat, light, massage and electricity in the treatment of disease was termed by the Council on Physical Therapy an adjunct to medical treatment to be used only under the strict supervision of a qualified physician and not an independent method.



Dr. William Gerry Morgan, Washington, president of the Association, warned physicians against the development of state medicine. "If the time ever comes when the medical profession of America supinely falls into the lock-step ranks of state-controlled servants, it will be the fault of blatant propagandists within our ranks operating through unthinkable sentimentalists, political tricksters and noisome newspapers," he said. Dr. Morgan cited conditions in Europe where state medicine, under various sick insurance plans, is operating. "No scheme has yet been evolved of state insurance, state medicine, or whatever it may be called, that has demonstrated unequivocally the advisability of going the limit in the matter of governmental control over individual health maintenance."

Dr. M. L. Harris, Chicago, retiring president, made a plea for medical centers owned and controlled by the profession as a means of counteracting the growing tendency of state direction of doctors. "Medicine is being besieged on every side by forces that are constantly growing stronger and stronger and unless some defensive effort is made to break the siege the profession must eventually capitulate and become socialized and physicians become employees of the state." Dr. Harris advocated the incorporation of county medical societies for business purposes with the establishment of centers for persons unable to pay the regular fees. Such centers should be controlled by the profession itself, he said.

The Association went on record as urging the revision of federal regulations of medicinal liquor and a more careful check by the Federal Radio Commission of so-called health broadcasts.

The Section on Nervous and Mental Diseases resolved its adherence to the principles stated in the report of the Committee on Psychiatric Jurisprudence and approved by the American Bar Association at their 1929 convention as follows:

1. That there be available to every criminal and juvenile court a psychiatric service to assist the court in the disposition of offenders.
2. That no criminal be sentenced for any felony in any case in which the judge had any discretion as to the sentence until there is filed as a part of the record a psychiatric report.
3. That there be a psychiatric service available to every penal and correctional institution.
4. That there be a psychiatric report on every prisoner convicted of a felony before he is released.
5. That there be established in each state a complete system of administrative transfer and parole, and that there be no decision for or against any parole or any transfer from one institution to another without a psychiatric report.

Eleven contributions to the scientific pro-

gram were presented by Missouri Fellows. The titles and authors follow:

Pyelitis in Pregnancy: Its Treatment and Prevention Based on Cystometric Conclusions (Lantern Demonstration), Dr. D. K. Rose, St. Louis.

Use of Epinephrine in Progressive Myopia: Further Report, Dr. Meyer Wiener, St. Louis.

Brain Abscess as the Otologist's Problem (Lantern Demonstration), Dr. O. Jason Dixon, Kansas City.

Studies in Experimental Fat Necrosis (Lantern Demonstration), Drs. M. Pinson Neal and Max M. Ellis, Columbia.

Neurologic Features of Carbon Monoxide and Carbon Bisulphide Poisoning (Lantern Demonstration), Drs. Sidney I. Schwab and Walter G. Siebert, St. Louis.

Syphilis of the Central Nervous System in Infants and Children (Lantern Demonstration), Dr. Charles C. Dennie, Kansas City.

Treatment of Fractures of the Head and Neck of the Radius, Dr. J. Albert Key, St. Louis.

Disabling Back Pain: Diagnosis and Treatment (Lantern Demonstration), Dr. Robert McE. Schauffler, Kansas City.

Chairman's Address: New Problems for the Orthopedic Surgeon, C. B. Francisco, Kansas City.

Cholecystography: An Analysis After Six Years' Application (Lantern Demonstration), Dr. Sherwood Moore, St. Louis.

The Enlarged Heart: Its Detection and Significance (Lantern Demonstration), Dr. Sinclair Luton, St. Louis.

New officers were elected as follows: President-Elect, E. Starr Judd, Rochester, Minnesota; Vice President, Louis J. Hirschman, Detroit; Secretary, Olin West, Chicago (reelected); Treasurer, Austin A. Hayden, Chicago (reelected); Speaker of the House of Delegates, F. C. Warnshuis, Grand Rapids, Michigan (reelected); Vice Speaker of the House of Delegates, Albert E. Bulson, Ft. Wayne, Indiana (reelected).

Philadelphia was selected for the 1931 meeting.

More than 5000 physicians attended the meeting with 120 registered from Missouri.

#### THE ST. LOUIS PURE MILK COMMISSION

Among the major movements in preventive medicine of our time is that one which is directed to the saving of the lives of infants, the reduction of infant mortality. This group stands well apart from all others and is as defined as that which aims at the elimination of cancer or tuberculosis or the occupational diseases and as a matter of fact has actually been more successful than any of these in the saving of human lives.

It was early realized, that is, about twenty-five years ago, that the high death rate of infants was not necessarily inherent to the beginning of their sojourn upon this earth, but

was wasteful and largely avoidable, and the measures evolved to meet these needless tragedies among the little ones were conceived and have been executed with astonishing simplicity.

There were two fundamental points upon which this campaign was based; first, rational feeding with breast milk where possible and with the cleanest and most wholesome cow's milk where it was not, and second, by the creation of stations or clinics where mothers could be taught how to feed their babies and as well how to carry out the essentials of hygiene of early life. It is greatly to our credit that both these systems came into vogue in St. Louis at a very early date. As is related in a special article appearing in this issue of *THE JOURNAL*,\* The St. Louis Pure Milk Commission was incorporated in 1904, which was right at the beginning of the certified milk movement in this country and, what is of equal importance, the opening of an infant welfare station in St. Louis by Dr. Adrien Bleyer in 1906, this being the first of these stations to appear in the United States. Today they are found in all large cities practically the world over, the idea having originated in France in 1904, just two years before.

It is nice to see in the historical sketch referred to, the names of Dr. Albert Merrell, the first president of the Commission, and of Dr. George M. Tuttle who succeeded him and also the name of Mr. Herbert Mortland who as general manager of the laboratory and secretary was the guiding genius of this organization through the major part of its existence.

In so far as the Commission is concerned the distribution of bottled milk, modified in a central laboratory, has thus come to an end in St. Louis, replaced by the municipal visiting nurses who, after meeting and becoming acquainted with the mothers at the welfare stations and there learning the doctor's orders, go into the homes to see that these orders are carried out. Henceforth The St. Louis Pure Milk Commission, having relinquished this phase of its activities, will limit itself to the supervision of certified milk which we believe serves the double purpose of maintaining exemplary standards for the dairying industry as well as providing the purest grade of milk obtainable by any means whatever for our babies, the authority for this supervision being vested in a group of physicians, who, for the good of the little ones and the community at large, will continue to serve in the future as they have in the past, without remuneration.

\* Page 389.

## THIRD INTERNATIONAL CONGRESS OF ROENTGENOLOGY

The Third International Congress of Radiology will be held in Paris at the end of July, 1931, under the high patronage of the President of the French Republic and the Honor Presidency of Mme. P. Curie. The work of the Congress will be divided under the following sections: Roentgen Diagnosis, Roentgen and Curie-therapy, Radiobiology, Radiophysics, Natural and Artificial Heliotherapy, Medical Electrolology.

In conformity with the regulations of the International Roentgen Congresses, membership in the Congress will be open to members of the national medical roentgen societies regularly constituted and persons accepted by these societies.

The officers of the Congress are, president, Dr. Antoine Beclere; vice presidents, Dr. Belot and Pr. Regaud (Paris); Pr. Cluzet and Pr. Rechou (Province); secretary-general, Dr. Ledoux-Lebard.

The registration fee is 300 Francs for each individual member, and 50 Francs additional for each member of the family attending the Congress. Application blanks will be made available at a later date.

Five delegates from the United States have been chosen by the various radiology societies in this country recognized by the Congress. These delegates are: Drs. Edwin C. Ernst, St. Louis; James T. Case, Battle Creek, Michigan; P. M. Hickey, Ann Arbor, Michigan; Albert Soiland, Los Angeles; and Douglas Quick, New York City.

Dr. Albert Soiland, 1407 South Hope Street, Los Angeles, is chairman of the delegates from the United States and Dr. Edwin C. Ernst, 100 Beaumont Medical Building, St. Louis, is secretary. Those who desire more detailed information regarding the Congress may address either the chairman or the secretary.

## DR. RUSSELL L. HADEN JOINS STAFF OF CRILE CLINIC

Dr. Russell L. Haden, Kansas City, has accepted the position of chief of the medical service of the Crile Clinic, Cleveland, Ohio. Dr. and Mrs. Haden are spending the summer in Europe and upon their return, about September 1, Dr. Haden will take charge of his new post.

Dr. Haden has been professor of experimental medicine in the University of Kansas Medical School since 1923, and has conducted a private practice in Kansas City, Missouri, since 1921. He received his medical education at Johns Hopkins University, graduating



in 1915. After serving as intern and resident house officer at Johns Hopkins Hospital he was appointed assistant resident physician and director of the laboratories at the Henry Ford Hospital, Detroit. During the World War he served as First Lieutenant in the Medical Corps and was assistant chief of the medical service at the base hospital, Camp Lee, Virginia.

Dr. Haden is a member of the Jackson County Medical Society, a Fellow of the American Medical Association, American Association of Pathologists and Bacteriologists, American Society for Clinical Investigation, and American Climatological and Clinical Association.

When Dr. Haden announced that he had accepted a position at the Crile Clinic, the Jackson County Medical Society adopted a resolution in appreciation of Dr. Haden's achievements and as an expression of the esteem in which he is held by his confreres. The resolution follows:

*Resolved*, That the members of the Jackson County Medical Society extend to Doctor and Mrs. Russell L. Haden congratulations upon Dr. Haden's appointment to the staff of the Crile Clinic at Cleveland which will give wonderful opportunities for research in clinical medicine; we appreciate the valuable contributions that Dr. Haden has made to medical science during the years of our fellowship with him, and sincerely regret that our Society will lose his membership; we wish the Haden family health and happiness in their new home.

## NEWS NOTES

Approximately \$110,000 of the \$125,000 sought by the City of Independence as its share of the funds for the Independence Community Hospital have been obtained. The hospital will cost \$250,000 not including the equipment.

Dr. Edward H. Skinner, Kansas City, read a paper before the Jasper County Medical Society at its meeting in Joplin, May 27, on "What Has Radium to Offer the Medical Profession?" Dr. Skinner made the trip through the courtesy of the Postgraduate Committee of the State Association.

Drs. A. A. Werner and Edgar F. Schmitz, St. Louis, were guests of the St. Francois-Iron County Medical Society at its meeting held at Leadwood, June 27. Dr. Werner gave an illustrated talk on "The Menopause, Artificial and Natural." Dr. Schmitz discussed "Methods for the Reduction of Mortality and Morbidity in Obstetrics." These speakers were sent to the Society by the Postgraduate Committee of the State Association.

Dr. Max W. Jacobs, St. Louis, was the guest of the Medical Society of the State of New York at its annual meeting held in Rochester, June 2 to 4. Dr. Jacobs read a paper on "Ocular Injuries of the New-Born."

Dr. C. H. Neilson, St. Louis, was the guest of the Buchanan County Medical Society at St. Joseph, May 21, and read a paper on "Some Tendencies of Modern Practice." Dr. Neilson was sent by the Postgraduate Committee of the State Association.

Drs. M. J. Lonsway, T. C. Hempelmann and G. V. Stryker, of St. Louis, were guests of the Five-County Medical Society at Bernie, at the request of the Postgraduate Committee of the State Association. Dr. Lonsway spoke on "Nutritional Disturbances in Children," Dr. Hempelmann discussed "Infectious Diseases in Children," and Dr. Stryker gave an illustrated talk on "Skin Lesions in Childhood." More than sixty-five members attended this meeting.

The Ryan Hospital at Mountain Grove was opened to the public on May 1, 1930. It is a modern, five-room, stucco building with an operating room, diet kitchen, quarters for nurses, bath room and a reception room. Hot water heat with an automatic oil burner insures an even temperature at all times. The equipment is entirely new and up-to-date. Dr. R. A. Ryan, owner and director of the institution, has an office in the building and gives personal attention to patients. All reputable practitioners of medicine are admitted to the hospital. The capacity is seven beds.

The United States Civil Service Commission announces open competitive examination for associate bacteriologist (medical). Applications for the position must be on file with the Commission at Washington, D. C., not later than July 30, 1930. The examination is to fill a vacancy in the position of clinical laboratorian, U. S. Veterans' Bureau Hospital, Palo Alto, California, and vacancies occurring in positions requiring similar qualifications throughout the United States. Competitors will not be required to report for examination at any place, but will be rated on their education, training and experience, and on a thesis or publication on some subject related to bacteriology or pathology. Full information may be obtained from the Civil Service Commission at Washington, D. C., or the secretary of the Civil Service Board of Examiners at the post office or customhouse in any city.

Dr. S. L. Baysinger, Rolla, lost a Croyden mashie iron on the golf course at Hannibal during the Annual Meeting of our Association last May. The iron was stamped with the initials S. L. B. If it has been found, Dr. Baysinger will appreciate its return.

Dr. Ralph A. Kinsella, St. Louis, professor of internal medicine, St. Louis University, was a guest of the Minnesota State Medical Association at its annual session in Duluth, July 14, 15, 16. Dr. Kinsella was one of the speakers in a symposium on rheumatic fever and delivered an address entitled "Special Consideration of Etiologic Factors."

A radiological exhibit including a display of small reproductions of X-ray films with diagnosis in numerous conditions and a radium exhibit consisting of photographs of patients before and after the use of radium as a therapeutic measure, was shown by Dr. P. F. Cole, Springfield, at the Hannibal meeting. The exhibit represented approximately 300 cases and was provided for the purpose of stimulating more study in X-ray diagnosis and radium therapy.

A report on the work of the National Leprosarium, at Carville, Louisiana, recently issued by the United States Public Health Service, indicates that during the past fiscal year 49 patients were admitted. There was an average of slightly more than 300 patients in the institution during the year. It is encouraging to note that 19 patients were released as no longer a menace to the public health. Six additional patients complied with the requirements for parole, but owing to their deformities and disfigurements which could not be cured these patients elected to remain in the hospital rather than be subjected to the hardships and humiliations which are frequently the portion of many paroled lepers. The nativity of the various patients of the leprosarium indicates that Louisiana and Florida had the largest number of any of the states. There were 10 who were born in Ohio. Of the patients admitted during the year, California leads with 15, Louisiana follows next with 11, Texas with 6, and Florida with 5. Chaulmoogra oil, administered orally, was used as routine treatment in 137 patients, the dosage ranging from 9 to 375 drops daily, and 180 are taking hypodermic injections of a special derivative of chaulmoogra oil. Supplementary treatment by means of physiotherapy and special light treatments are also given.



The new building of the Evangelical Deaconess Home and Hospital, St. Louis, located on Oakland Avenue across from Forest Park, was dedicated May 25. Rev. G. A. Kienle, Chicago, president of the Federation of Evangelical Charities, spoke. The institution is owned and conducted by the Evangelical Deaconess Society of St. Louis which was organized March 18, 1889. The first hospital was erected in 1892 and accommodated 40 patients. The new structure is a seven story building and has a 200-bed capacity. The hospital was open to visitors during the week following the dedication giving an opportunity to visitors to see the hospital before patients were admitted. The medical and surgical staff which is not complete at present, is composed of: Drs. L. H. Hempelmann, J. C. Peden, E. H. Rohlfing, Leland Alford, E. Brockelmann, Lee Dorsett, C. T. Eber, Chas. Klenk, H. G. Lund, H. L. Nietert, Francis Reder, J. F. Shoemaker, W. A. Shoemaker, A. R. Shreffler, C. H. Shutt, F. C. Simon, Charles Stone, George B. Winter, F. M. Barnes, R. H. Davis, W. C. Gayler, Harry W. Lyman, Noble D. McCormack, Hugo Reim and H. McClure Young.

## OBITUARY

### SAMUEL A. PEAKE, M.D.

Dr. Samuel A. Peake, St. Louis, a graduate of Marion-Sims College of Medicine, St. Louis, 1895, died June 24 of hemorrhage of the brain, aged 58.

Dr. Peake was born in Ireland and resided in Canada during the time he was receiving his preliminary education. He had practiced in St. Louis for thirty-five years, retiring from the superintendency of the St. Louis Baptist Hospital three years ago. Since that time he had maintained an office and carried on private practice. During his long practice, Dr. Peake had made many friends and won esteem among the members



of his profession. He was a member of the St. Louis Medical Society and a Fellow of the American Medical Association.

#### DELBERT LEROY WOOD, M.D.

Dr. Delbert L. Wood, Kansas City, a graduate of the Medico-Chirurgical College, Kansas City, 1904, died May 14, aged 50.

Dr. Wood specialized in urology. He was a member of the Jackson County Medical Society.

## SOCIETY PROCEEDINGS

### COUNTY SOCIETY HONOR ROLL FOR 1930

(UNDER THIS HEAD WE LIST SOCIETIES WHICH  
HAVE PAID DUES FOR ALL THEIR MEMBERS)

#### HONOR ROLL

Mercer County Medical Society, December 12, 1929.

Madison County Medical Society, December 16, 1929.

Benton County Medical Society, January 8, 1930.

Pulaski County Medical Society, January 11, 1930.

Webster County Medical Society, January 24, 1930.

Chariton County Medical Society, January 27, 1930.

Ralls County Medical Society, March 6, 1930.

Camden County Medical Society, March 10, 1930.

Dent County Medical Society, April 2, 1930.

Schuyler County Medical Society, April 5, 1930.

Platte County Medical Society, April 7, 1930.

Christian County Medical Society, April 7, 1930.

Macon County Medical Society, April 12, 1930.

Miller County Medical Society, April 14, 1930.

Phelps County Medical Society, April 25, 1930.

Atchison County Medical Society, April 30, 1930.

Lafayette County Medical Society, May 9, 1930.

### CLAY COUNTY MEDICAL SOCIETY

The Clay County Medical Society is seventy-six years of age and is still going strong. Several of the members are crowding three-score-and-ten and never miss a meeting. Some are past seventy and yet full of enthusiasm.

The meeting at the Odd Fellows Hospital in Liberty, June 26, was typical; thirty members, their wives and visitors sat down to a sumptuous noon

dinner, served by the fine little girls of the Home in compliment to the Society. The Ladies Auxiliary met concurrently and a "good time was had by all."

After dinner the surgical section witnessed a number of tonsillectomies performed by Drs. Noah Adams and W. W. Harrington, of Kansas City, honorary members of our Society.

In the medical section, Dr. Y. D. Craven, Excelsior Springs, gave an address on "Endocarditis, With Report of Cases." This was one of the most practical talks of the year and was discussed at length by Drs. J. H. Rothwell, Liberty; C. H. Sudarth and E. C. Robichaux, of Excelsior Springs. The chief points were, (1) the attack may simulate malaria, typhoid, or even pneumonia; (2) it may persist for considerable time without indication of valvular leakage; (3) petechial spots may indeed be the first positive indication, or infarction, pulmonary, renal, or even cardiac; (4) at this point it is often too late to look for success in treatment. Rest in bed, meaning absolute rest, and symptomatic procedures are all that offer anything.

Dr. Harold M. Roberts, Kansas City, gave a cinema lecture up to the hour on "Treatment of Bronchial Asthma Through the Laryngoscope by Suction-Aspiration." The doctor was hampered by an obstreperous projector, but his points were made plain and were duly appreciated by the listeners.

It was unanimously voted to abandon the August meeting and meet again the last Thursday in October at Excelsior Springs.

J. J. GAINES, M.D., Secretary.

### FIVE-COUNTY MEDICAL SOCIETY

The regular quarterly meeting of the Five-County Medical Society, comprised of Butler, Dunklin, New Madrid, Pemiscot and Stoddard counties, was held at Bernie, Wednesday evening, June 11. This meeting was more largely attended than any in the history of the Society, there being sixty-five physicians present. Physicians from Cape Girardeau and Scott counties and several dentists and nurses were present as guests, as were the local ministers, lawyers and city officials.

A 6 o'clock dinner was served in the basement of the new Christian Church at which covers were laid for seventy-two. The dinner was served by the Ladies' Aid of the Church and the physicians were profuse in their praise of the dinner and the service. Dr. J. P. Brandon, Essex, president of the Stoddard County Medical Society, acted as toastmaster.

The address of welcome was delivered by Attorney Creal Black, of Bernie. It was a terse, able and brilliant talk. Dr. Paul Baldwin, Kennett, who is indeed an orator, responded to Attorney Black's address. Short talks were also made by Drs. T. C. Hempelmann, M. J. Lonsway, and G. V. Stryker, of St. Louis, and by Drs. W. J. Hux, B. W. Hays, G. S. Cannon, T. J. Brentlinger, O. C. Stuart, A. A. Mayfield, T. C. Allen, and others.

Miss Christina Edmonds gave a fine reading of "Our Flag" and Mrs. Abernathy concluded the program with "Yankee Hash."

The meeting then adjourned to the Methodist Church where the scientific program was rendered as follows:

"Nutritional Disturbances in Children," by Dr. M. J. Lonsway, St. Louis.

"Skin Lesions in Childhood," illustrated with lantern slides, by Dr. G. V. Stryker, St. Louis.

"Infectious Diseases in Children," by Dr. T. C. Hempelmann, St. Louis.

The essayists were sent by the Postgraduate Committee of the State Association. Their addresses were exceedingly valuable to us. Dr. Lonsway presented a vast amount of important information on nutrition, much of which was new to us; Dr. Hempelmann gave us a thorough description of the new and modern conception of infections and how to handle such conditions; Dr. Stryker covered a wide territory on skin diseases illustrated with lantern slides. Those registered at the dinner were: Drs. M. J. Lonsway, T. C. Hempelmann, and G. V. Stryker, of St. Louis; J. P. Brandon and W. J. Hux, of Essex; Carl A. W. Zimmermann, O. L. Seabaugh, J. L. Cochran and J. W. Berry, of Cape Girardeau; Frank LaRue, O. C. Stuart, T. J. Brentlinger, S. S. Davis, W. C. Dieckman, D. O. Hoxie and J. Will Smith, of Dexter; F. W. Speidel, R. E. Martin and A. Glen Davis, of Senath; C. D. Harris, Morley; U. P. Haw, Benton; A. J. Clay, F. G. Bond, A. R. Rowe, W. L. Brandon, J. L. Harwell, B. J. McCawley, H. M. Hendrickson and Dr. Smith, of Poplar Bluff; G. W. Presnell and A. A. Mayfield, of Sikeston; U. A. V. Presnell, W. L. Gossage, Wheeler Davis, and Paul Baldwin, of Kennett; J. W. Johnson, Hayti; G. T. Van Cleve, J. D. Van Cleve, Homer Beall, S. E. Mitchell, and A. C. Moon, of Malden; E. A. P. Briney, Edward Ford and E. Phillips, of Bloomfield; M. L. Cope, Campbell; G. S. Cannon, Fornfelt; B. W. Hays, Jackson; E. G. Cope, Hornersville; W. M. O'Bannon and W. L. Digges, of New Madrid; H. T. O'Kelley, Portageville; Claude McRaven, Marston; W. H. Goad and T. C. Allen, of Bernie.

Visitors: Reverend G. A. Crocker, Creal Black, V. H. Lincoln, Elder I. M. Drye, B. L. Jeffress, E. E. Edmonds, Henry Roper, Misses Lottie and Christina Edmonds and Mrs. Abernathy, of Bernie; Reverend Forsythe, of Essex; also two nurses whose names were not registered.

T. C. ALLEN, M.D.  
J. D. VAN CLEVE, M.D.

#### GREENE COUNTY MEDICAL SOCIETY

The regular meeting of the Greene County Medical Society was held March 28 at the Springfield Public Library with the following members present: Drs. J. W. Love, W. E. Handley, J. F. Leslie, W. Kelly, W. P. Patterson, O. C. Horst, M. C. Stone, G. Hogg, W. C. Cheek, Lee Cox, J. N. Wakeman, J. D. James, Robert Glynn, C. E. Feller, John Williams, L. R. Webb, A. W. Gifford, W. A. Delzell, J. P. McCann, M. T. Edmondson, H. A. Lowe, and T. V. B. Crane, Springfield; Dr. L. L. Henson, Fair Grove. The minutes of the last meeting were read and approved.

Dr. J. W. Love, Springfield, chairman of the special committee appointed to send telegrams to Missouri Senators and Representatives in Congress to protest against passage of Bills H. R. 9053 and 9054, reported that the committee had complied with these instructions.

Dr. Robert Glynn, Springfield, president, read a letter from Dr. Frank I. Ridge, Kansas City, chairman of the Committee on Insurance and Memory Funds, relative to the Widows' Fund of the Missouri State Medical Association.

The scientific program consisted of a symposium on "Respiratory Infection," conducted by Drs. J. F. Leslie and H. A. Lowe, of Springfield.

Dr. M. J. Armstrong, Springfield, who was to discuss the subject from the standpoint of the internist, was unable to be present.

The papers were discussed by most of the members present.

#### Meeting of April 11

Dr. O. C. Horst, Springfield, vice president, presided in the absence of the president, Dr. Robert Glynn, Springfield. Twenty-two members were present. The minutes of the previous meeting were read and approved.

The scientific program consisted of a paper by Drs. John Williams and J. N. Wakeman, of Springfield, on "Results Obtained With Diphtheria Toxin-Antitoxin in the Schools," and "Comparison of the Results of the Use of Toxoid in Diphtheria Immunization," by Dr. U. J. Busiek, Springfield.

The immunization of dogs as a means of preventing rabies was presented to the Society by Dr. Joseph D. James, Springfield. He reported that approximately 75 antirabic serum treatments were given in the City of Springfield last year. After a lengthy discussion the chair appointed a special committee to work in conjunction with the regular Committee on Public Health and Legislation to investigate the best method of preventing rabies with the view of presenting the results of their investigation to the City Council.

#### Meeting of April 25

The president, Dr. Robert Glynn, called the meeting to order with twenty-two members present.

Dr. W. P. Patterson, Springfield, of the special committee appointed to investigate the best method of preventing rabies, reported that it was the consensus of the committee, based on statistics of various immunologists, that immunization of dogs was comparatively successful. The Society voted that this committee present the matter to the City Council and County Court advocating a proper city ordinance requiring immunization of dogs against rabies.

A letter from the secretary of the Cole County Medical Society relative to the reduction of state dues was read. On motion, duly seconded, this matter was laid on the table.

The chair appointed a special committee consisting of Drs. H. A. Lowe, C. E. Feller, and O. C. Horst, of Springfield, with the president and secretary ex-officio, to confer with Dr. N. P. Colwell, secretary of the Council on Medical Education and Hospitals of the American Medical Association, in regard to a hospital survey in Springfield, April 28 and 29.

Dr. George W. Hogeboom, Springfield, read a paper on "Some Factors in the Treatment of Hypertrophy of the Prostate Gland," and showed some motion pictures of the urinary tract.

Dr. W. J. Wills, Springfield, read a paper on "Renal Function Test; Blood and Urine Chemistry."

Dr. Robert Glynn, Springfield, spoke on "Nonspecific Prostatitis."

#### Meeting of May 9

The meeting was called to order by the president, Dr. Robert Glynn, Springfield, with twenty-three members present.

Dr. J. W. Love, Springfield, chairman of the committee appointed to send telegrams to Missouri Senators in Congress protesting against the passage of H. R. Bills 9053 and 9054, reported that similar protests were recently sent to the Senators in regard to the Porter Bill, H. R. 11143.

Dr. George E. Knappenberger, Kansas City, gave an interesting talk on "Differential Diagnosis of Chronic Gastro-Intestinal Disease," and presented several cases furnished by local physicians. Dr.



Knappenberger confined his remarks mostly to gastric and duodenal ulcers and stressed the importance of a careful and accurate history.

#### Meeting of May 23

Dr. Robert Glynn, Springfield, president, called the meeting to order with fifteen members and eight dentists present.

Dr. J. W. Love, Springfield, delegate to the State Association meeting at Hannibal, gave a brief report of the convention.

The subject of the scientific program was "Dentistry in Relation to General Medicine." Dr. R. E. Darby read an interesting paper on "The History of Dentistry and Its Relation to Medicine."

Dr. B. E. Ratcliff showed a number of X-ray films of various dental conditions.

In the absence of Dr. Arthur Knabb, Springfield, who was to have taken part in the program, Dr. Robert Glynn read the paper prepared by Dr. Knabb on "Dentistry From the Physician's Viewpoint." The papers were thoroughly discussed.

J. N. WAKEMAN, M.D., Secretary.

#### JASPER COUNTY MEDICAL SOCIETY

The regular meeting of the Jasper County Medical Society was held May 20, at 8:00 p. m., the vice president, Dr. H. L. Wilbur, Joplin, presiding. There were ten members and eight visitors present. The minutes of the last meeting were read and approved.

Dr. L. C. Chenoweth, Joplin, one of the delegates to the State Meeting, gave a brief report and announced that the State Society had accepted the invitation tendered by the Jasper County Medical Society to hold the 1931 meeting in Joplin.

After some discussion concerning the time and place for the last meeting before summer adjournment a motion was adopted that the chair appoint a committee to complete arrangements for this meeting, to be held June 3, if possible. The chair appointed Drs. O. T. Blanke, B. E. DeTar, and J. L. Sims, of Joplin.

Two reels of moving pictures showing peristalsis on experimental animals and one reel showing the anatomy of the abdominal wall on a cadaver were presented by Mr. Sherburne, representative of the Petrolagar Laboratories. It was very instructive and enjoyed by all present. The Society extended a vote of thanks to the company and their representative.

#### Meeting of May 27

The meeting was called to order by the president, Dr. Charles T. Reid, Joplin, with sixteen members and two visitors present. The minutes of the previous meeting were read and approved.

The matter of medical service at the Boy Scout Camp to be held later in the summer was presented and an invitation extended to the members of the Society to volunteer their services for one or more days during the camp.

The scientific program was provided by Dr. E. H. Skinner, Kansas City, who discussed "The Cancer Problem With Special Reference to Radium Treatment." He reviewed the method and progress in different countries of Europe and in the United States. He emphasized the opinion that the solution of the cancer problem probably did not lie in the discovery of a cure for the already existing disease, but in early recognition and eradication. Dr. Skinner compared the present status of the cancer problem to that of smallpox a hundred years ago when many men were advocating cures for smallpox which were subsequently replaced by vaccination. This paper brought forth

interesting discussion and the meeting was declared much worth while.

#### Meeting of June 10

The June 10 meeting of the Jasper County Medical Society was held in the form of a banquet as is the custom previous to adjournment for the summer. About sixty-five members, their wives, and guests were present.

Dr. R. L. Sutton, Kansas City, gave a talk on "The Long Trek," a story of his Asiatic and African hunt for big game, illustrated with three hundred and seventy-five lantern slides. The story of his travels and experiences was intensely interesting and was much enjoyed by those present.

The Society adjourned until September.

OTTO T. BLANKE, M.D., Secretary.

#### THE KANSAS CITY ACADEMY OF MEDICINE

##### Meeting of April 25, 1930

#### OBSERVATIONS ON THE THYROID GLAND—BY DR. W. F. RIENHOFF, JR., Baltimore.

Observations have been made during the last six years on surgical and autopsy thyroid gland material at the Johns Hopkins University. The normal appearance of the thyroid gland varies according to the region from which the patient comes. We prepared wax models presenting the third dimension by means of impressions made from serial sections of glands. The normal thyroid is not lobulated but consists of connecting bars and bands of parenchyma separated by an anastomosing series of spaces forming a fenestrated labyrinth. There are no interacinar cell groups, but the so-called "fetal cells" are in reality terminal parts of acini.

Models made from goiters removed from toxic patients in contradistinction show hyperplastic, indented acini; macerated preparations reveal a markedly thickened epithelial wall with intra-acinar protrusions and correspondingly decreased intra-acinar spaces. Injected specimens reveal an extensive capillary bed.

Preparations made from dogs show that the blood capillaries are more intimately related to the follicles than the lymph capillaries. The lymphatics of the thyroid begin as an interfollicular or interacinar plexus composed of capillaries and bursettes. This drains into an intraglandular plexus running along the septa which in turns runs into an extraglandular reticulum from which lymph is conveyed to the deep cervical glands.

By means of the study of parts of the gland removed from the same patient at different times, certain things were discovered. Tissues examined following iodine remissions showed the acini ballooned out with colloid that stained more deeply than before, compressed epithelium whereas formerly the cells were cuboidal, and in some instances evidence of "hyperinvolution" with colloid cyst formation, and even extreme degeneration and desquamation of the flattened epithelial cells. Some regions apparently resisted involution—"hypoinvolution." Proof that changes were not due to interference with circulation was established by removal of the isthmus as well as the upper pole before and after iodine medication.

Tissues were examined also following spontaneous involution, and they presented most of the characteristics found following iodine remission. Involutional nodules developed (localized regions of hypertrophy and hyperplasia) in 34 per cent of 101

cases studied. In the remaining 58 per cent the nodular element consisted of localized areas of hypertrophy and hyperplasia with normal gland tissue in between. In only 8 per cent were the tumors true neoplasm.

My interpretation of these findings is that the thyroid gland is continuously in a state of flux, like the mammary gland, its activity controlled by two factors, namely, a stimulation to hyperactivity such as occurs during menstruation, pregnancy or lactation, and a stimulation to involution. Thus the normal gland becomes hyperplastic, then undergoes remission leaving definite histological changes, larger acini with decreased blood and lymph supply, or even degenerated regions. This cycle takes place with either diffuse or local involvement of the gland with histological sequelae of involution local or diffuse. A patient from a goitrous district with colloid goiter does not show as striking involutional changes in the parenchyma as one from a nongoitrous district because in the former there is more colloid to begin with which negates comparison of the gland before and after iodine. I believe that most nodules are not benign neoplasms, but are the result of this flux or histological lability of the gland.

#### DISCUSSION

DR. G. E. KNAPPENBERGER: The essayist has cleared up in brilliant manner classification of diseases of the thyroid gland which formerly has been so confusing. According to his theory, changes transpire in this organ in connection with the various adjustment periods of life, such as pregnancy.

DR. V. E. CHESKY: After Dr. Rienhoff's first paper appeared, we studied glands removed from patients with clinically definite exophthalmic goiter who had used Lugol's and some glands from patients who had not used Lugol's. In those without Lugol's we found various degrees of hyperplasia, and in those with Lugol's we found the same groups of changes with approximately the same number in each group, which apparently did not substantiate Dr. Rienhoff's observations although we did note, as he did, an increase in the quantity and staining qualities of the colloid after Lugol's. Since then I have noted patients clinically toxic from exophthalmic goiter in whose glands I expected to find marked papillary proliferation but found only large colloid-filled acini with innocent appearing epithelium. I am now quite sure that the iodine produced this change. Dr. Rienhoff, working carefully, has eliminated all chance of disturbing circulation in doing his first biopsy; and, with the exception that I still think there are some thyroids particularly those of the markedly glandular type in which Lugol's solution produces little epithelial change, I think he has proved his case.

DR. H. R. WAHL: At the outset I was skeptical of Dr. Rienhoff's work, but the slide material he has presented tonight, which is similar to what I see every week, has convinced me that he is right.

DR. KERWIN KINARD: Dr. Rienhoff's work verifies that of Marine in showing that exophthalmic, colloid and nodular goiters are not distinct pathological entities, but are progressive types of histological metamorphosis in thyroid hypertrophy and hyperplasia, and reversion, with or without exacerbations and recurrences.

Nodular goiters should not be left unoperated upon. They show, in addition to simple degeneration, about 5 per cent of malignant degeneration. Whether they are true fetal adenomas, or the nodules resulting from hypertrophy and hyperplasia, the degree of potential malignancy is indeterminate.

DR. H. P. KUHN: Dr. Hertzler's trite remark was that the way to study goiter was to study the life history of the thyroid gland. Dr. Rienhoff's paper proves this statement. I should like to ask the doctor how he accounts for both hyperthyroid and hypothyroid symptoms to be present in a patient at the same time; also, how may a patient be toxic and yet have a normal basal metabolic rate.

DR. J. H. OGILVIE: There seems to be an analogy between the flux in pancreatic cellular development and that in the thyroid, both having hypertrophic and degenerative epithelial changes. I accept the pathological material as presented by Dr. Rienhoff, with two exceptions. In a series of cases there were histories of episodes of hyperplasia with definite toxicity followed by remissions in which the patient improved clinically but still presented low grade symptoms of toxicity followed by other peaks of hyperthyroidism. I believe the disease progresses by remissions.

There is a type of thyroid which does not respond to Lugol's solution. The patient is very sick, the thyroid small and pathologically shows marked infiltration with lymphocytes and active germinal centers; the epithelial element shows no active hyperplasia.

I do not believe Dr. Rienhoff's theory covers all of the processes. He must have seen cases of pressure atrophy and myxedema from a large adenoma. Some cases of low grade hypothyroidism and uterine hemorrhages respond to thyroid feeding by cessation of the bleeding. In this part of the country, 60 per cent of patients with thyroid nodules get into trouble, either from toxicity or malignancy, so I believe we should regard them as we do tumors of the breast and advocate removal.

DR. F. C. HELWIG: I should like to ask the doctor about formation of fibrous tissue in three weeks, as described in one of his early articles. For microscopical studies, care must be exercised in the choice of sections in order to get a fair estimate of the thyroid gland as a whole. I believe that this tracing of the development of goiter as a continuous process checks with Dr. Hertzler's observations. I should like to ask the doctor about patients dying with symptoms of thyroid crisis while on Lugol's solution in which the glands do not appear enlarged nor show excessive intra-acinar papillation; also, how the gland may appear histologically toxic while the patient is under the effect of Lugol's solution.

DR. L. P. ENGEL: Does Dr. Rienhoff believe the artificial iodine remission is as complete as the natural remission?

DR. RIENHOFF, in closing: I expected to meet Dr. Hellwig, of Wichita, here and discuss with him points on which there has been some difference of opinion. In a recent article<sup>1</sup> he stated that if I had done what I said I did, removing the upper pole of the thyroid gland, it would be ideal, but that in his opinion I could not accomplish this surgically. If Dr. Hellwig would examine the glands of patients operated upon at the operating table, as well as in cadavers, he would note that one can remove much tissue from the right lobe without disturbing circulation through the superior thyroid artery, for this vessel, the large anterior branch most always, as shown by Mastin<sup>2</sup> of the Mayo Clinic, descends to the isthmus before it enters the gland substance.

Furthermore, at the Halstead Clinic he examined sections from hyperthyroid patients operated upon in the days when iodine was not given as a pre-

1. Surg. Gynec. & Obst. 47:173-179, 1928.

2. Surg. Gynec. & Obst. 36:69, 1923.



operative measure, and compared them to different cases operated on in later years after iodine had been employed. But the thyroid gland of one individual cannot be compared adequately with that of another. Jackson, of the Jackson Clinic, Madison, Wisconsin, Marine, Catelle, Tate Mason, of the Mason Clinic, Rankin, of the Mayo Clinic, Dunhill in England, Isclin in Paris, and MacCallum at Hopkins, all agree that iodine causes the most pronounced histological effects in the thyroid glands in the majority of individuals. It is possible that glands operated upon in the Halstead Clinic contain more colloid since Oklahoma and Kansas are in some sense goitrous belts. Therefore these glands would not show as striking histological changes after iodine as glands from those in which there is practically no colloid, the type found with exophthalmic goiter in Baltimore.

In order to meet Dr. Hellwig's criticism squarely I resected the entire isthmus of the thyroid gland in five cases before iodine was given and compared sections to sections after iodine was given. The sections were made in such a way that the entire lobe was cut across and not just one block of a few mms. square. These confirmed my previous observations.

Meeting of May 23, 1930

## ETIOLOGY AND TREATMENT OF EDEMA.—By DR. NORMAN M. KEITH, Rochester, Minn.

In Bright's original description of renal disease with edema he assumed that it was always fatal. After criticism and further experience he reported several cases of recovery. During and since the World War it has been possible to observe patients with acute nephritis throughout the course of the disease, and we know that many recover completely. Work has been done which indicates that after the removal of foci of infection, and after termination of pregnancy, many patients recover uneventfully. These indicate that acute nephritis is often a self-limiting disease, which fact must be kept in mind in the evaluation of various therapeutic measures.

Edematous states occur chiefly in, (1) renal disease; (2) myocardial failure; (3) hepatic disease; (4) obstruction of venous or lymphatic vessels; (5) certain disturbances of the endocrine glands. The possible etiologic factors are, (1) retention of water; (2) retention of sodium chloride; (3) retention of sodium; (4) changes in the protein concentration of blood serum; (5) alteration in the hydration of colloids of the tissues; (6) disturbances of certain endocrine glands.

Helpful general measures in the treatment of edema states include, (1) dietary restriction; (2) surgical drainage of the areas containing excessive amounts of fluid; (3) sweating and (4) diuretics, including digitalis, caffeine derivatives, organic mercury compounds, acid and alkali salts, urea, hypertonic solutions such as glucose or sodium bicarbonate, glandular extracts such as thyroid or parathyroid, removal of foci of infection and the administration of foreign protein.

A weighed diet low in mineral salts and water has been helpful in certain cases of stubborn edema. The acid salts most effective in my experience have been calcium chloride, ammonium chloride and ammonium nitrate. A factor in the action of ammonium salts depends on the ready conversion of the ammonium radicle to urea and the subsequent effect of the acid radicle. Osman has shown that large doses of alkali salts may have a diuretic

action in cases of edema. Some cases which do not respond to the exhibition of the diet and salts will frequently react to organic mercury preparations, such as merbaphen or salyrgan, or the three measures combined. Such treatment is helpful in chronic lipid nephrosis and may even be efficacious in subacute or chronic diffuse glomerulonephritis.

For cardiac edema, the same type of treatment is useful. Ammonium chloride or ammonium nitrate and mercury injections are of value even without the assistance of digitalis. Euphyllin may be a useful adjunct. It is noteworthy that therapeutic measures directed to the relief of edema may be effective at one time and ineffective at other times. Other conditions in which the therapeutic measures outlined have proved useful are Pick's disease, Banti's disease, portal, biliary and syphilitic cirrhosis of the liver and cases of intra-abdominal, venous or lymphatic obstruction. In many cases of hepatic disease, ascites may be only an incident in the disease process and the patient may eventually die with some other complication, such as hemorrhage from the bowel.

A change from ammonium nitrate to ammonium chloride is sometimes indicated when too much chloride has been removed from the body by the effect of the nitrate. Such an action is indicated by a low content of chloride in the plasma.

## DISCUSSION

DR. RALPH MAJOR: Dr. Blackhall preceded Dr. Bright in the study of this disease, noting the dropsy and albuminuria, and treating with digitalis and salines, but missing the scarred kidneys at necropsy. Friedrich Müller thought that edema was due to sodium rather than chloride retention, and potassium chloride was shown to decrease edema and sodium chloride to increase it in some cases. According to Widai, edema may be due to disturbances in mineral metabolism; according to others, to protein metabolism (colloidal changes), to fat metabolism especially to cholesterol, as suggested by Epstein. However, edema has been found present without a high cholesterol value.

The edema following administration of insulin may be alarming but is harmless.

An interesting phase is the increasing evidence of the minor part played by the kidneys in edematous states. The kidneys must excrete material that is brought to them. Why diuretics work inconstantly is an obscure problem. Perhaps disturbances in the interrelation of the constituents of the blood determines edematous states.

DR. FRANK HALL: The problems presented are more in the realm of the clinician than of the pathologist. I believe the principles are laid down in colloidal chemistry. When one prepares a colloidal gold solution he is aware of the extreme delicacy of alterations in producing marked changes. The value of tonight's paper is in the removal of body fluids in any kind of disease.

DR. A. C. GRIFFITH: I should like to ask the doctor when ammonium chloride, ammonium nitrate or calcium chloride are indicated.

DR. R. M. ISENBARGER: Does Dr. Keith consider water to be a diuretic? Water diuresis is said to be prevented by pituitrin in states of depression after decapitation or in deep narcosis. Pick claims that caffeine diuresis may be prevented by luminal administration, yet paraldehyde does not have this effect. Marked diuresis may be initiated by puncture of the brain stem. This region may have something to do with water metabolism.

DR. H. L. DWYER: Does Dr. Keith regard acute

glomerular nephritis as a general capillary disturbance rather than a disease of the kidney per se? And what does he think of Dr. Clausen's theory of a surface active substance in the blood of patients with tubular nephritis being responsible for lowering the surface tension of the serum and the resulting edema?

DR. KEITH, closing: There are still many unsolved problems in the metabolism of water and salt in relation to edema. Pituitrin may have both a diuretic and an antidiuretic action, depending on the storage of water and salt in the tissues and the dose administered. Possibly its effect is due to changes in general metabolism or, as some observers have suggested, to ureteral spasm. In regard to the use of organic mercury preparations in edematous states, the clinician must understand their pharmacologic action and the exact dose to employ. In experimental animals, bichloride of mercury produces diuresis in half an hour, but organic preparations produce diuresis only after one and a half hours, as has been so clearly shown by Stehle. Pick showed that caffeine was more effective as a diuretic in a dog with an Eck fistula than in a normal dog; hence the liver is a factor in certain forms of diuresis. Methemoglobinemia is a possible toxic effect of nitrates. In my experience, methemoglobinemia due to ingestion of nitrate is in itself not a serious symptom and disappears quickly on discontinuance of the drug. It seems to be universally accepted that the best initial treatment for acute glomerulonephritis is the lowest possible intake of water, salt and food; in later stages diuretics may be indicated.

#### LAFAYETTE COUNTY MEDICAL SOCIETY

The Lafayette County Medical Society met in the parlors of the Farmers Bank, Higginsville, April 22, at 2:00 p. m. Those present were: Drs. F. M. Shryman, E. Lissack, E. L. Johnston, of Concordia; C. T. Ryland and T. R. Butler, of Lexington; W. E. Martin and R. C. Schooley, of Odessa; J. W. Horner, Alma; L. Carthrae, Jr., Corder; J. B. Willis, Mayview; W. A. Braecklein, W. C. Webb, J. DeVoine Guyot and W. E. Koppenbrink, of Higginsville. Dr. E. H. Skinner, Kansas City, was the guest of the Society.

Dr. J. W. Horner, Alma, read a paper on "Empyema; With Reports of Five Cases." One of these cases he presented, a young woman who had empyema eight years previously. Following a number of operations she still had two large bronchial fistulae.

Dr. E. H. Skinner, Kansas City, discussed "What Has Radium to Offer the Medical Profession?" His talk was both entertaining and instructive. Dr. Skinner answered many questions and his subject was discussed at length.

W. E. KOPPENBRINK, M.D., Secretary.

#### NODAWAY COUNTY MEDICAL SOCIETY

The May meeting of the Nodaway County Medical Society was held on May 9, 1930, at 7:30 p. m., at the Sisters of St. Francois Hospital, Maryville. The president, Dr. L. E. Dean, Maryville, introduced Dr. Frank J. Hall, Kansas City, director of the Laboratory of Clinical Pathology.

Dr. Hall addressed the Society on "Modern Bacteriology, Useful to Practitioners of Medicine." He gave interesting facts concerning bacteriology, many practical points, and much useful technic for the office and the laboratory.

The Society's regular summer vacation was announced tentatively to begin after the June meeting.

The St. Elizabeth's Hospital at Hannibal extended a very cordial invitation to our members to accept their hospitality and entertainment while attending the State Meeting at Hannibal.

#### Meeting of June 13

The June meeting of the Society was held on Friday the 13th, in the first-floor lecture room of the Sisters of St. Francois Hospital, Maryville. The meeting was called to order by the president, Dr. L. E. Dean, Maryville, at 7:30 p. m., with the following members present: Drs. C. T. Bell, J. A. Bloomer, K. C. Cummins, L. E. Dean, C. P. Fryer, R. C. Person, H. S. Rowlett, Jack Rowlett, and W. M. Wallis, Jr., of Maryville; Dr. Charles D. Humbert, Barnard; Dr. W. M. Hindman, Burlington Junction; Drs. Ed Miller, Hopkins, and Earl Braniger, dentists of Maryville; Dr. G. Wilse Robinson, Kansas City, and several Sisters of the hospital staff were present as invited guests.

The application of Dr. R. B. Bridgeman, Jr., Hopkins, for membership in the Society was read. The president appointed Drs. K. C. Cummins, C. P. Fryer, and Jack Rowlett to investigate and report on Dr. Bridgeman's application.

The president, Dr. L. E. Dean, Maryville, reported briefly on the Annual Meeting of the State Association at Hannibal.

Through the courtesy of the Petrolagar Laboratories, Inc., Chicago, three reels of medical motion pictures were shown by the Petrolagar representative, Mr. A. H. Sherburne. These dealt with the influence of drugs on gastro-intestinal motility, various laparotomies, and Colles' fracture. The demonstration was much appreciated.

Through the courtesy of the Postgraduate Committee of the State Association, Dr. G. Wilse Robinson, Kansas City, gave a broad but detailed survey of the elementary anatomy and physiology of the central nervous system. He illustrated his remarks with blackboard sketches and prepared models, and brought out many clinical features for which disorders of structure or functions in the central nervous system are accountable.

Reprints on medical quackery, furnished by Dr. A. J. Cramp, a former resident of Nodaway County and now director of the Bureau of Investigation of the American Medical Association, were distributed to the members with Dr. Cramp's compliments.

Dr. C. T. Bell, Maryville, moved that the Society adjourn until Friday, September 12, 1930. The motion was seconded by Dr. K. C. Cummins, Maryville, and carried.

Most of the members and guests present enjoyed a lunch at the Puritan Cafe with Dr. Robinson.

CHAS. D. HUMBERT, M.D., Secretary.

#### RANDOLPH-MONROE COUNTY MEDICAL SOCIETY

The Randolph-Monroe County Medical Society met June 10, 1930, at Moberly, the president, Dr. L. O. Nickell, Moberly, presiding. Dr. C. H. Dixon, Moberly, gave an interesting report of the Annual Meeting of the State Association held at Hannibal.

Dr. L. O. Nickell read an excellent paper on "Lower Alimentary Diseases."

Those present were: Drs. C. H. Dixon, H. C. Griffiths, L. E. Huber, M. E. Leusley, Jessie Maddox, O. K. Magee, L. O. Nickell, and E. W. Shrader, of Moberly; D. A. Barnhart, Huntsville; R. A. Woods, Clark.

T. S. FLEMING, M.D., Secretary.



**ST. LOUIS MEDICAL SOCIETY****Meeting of the Council March 12, 1930**

The meeting was called to order at 8:30 p. m., by the president, Dr. Vilray P. Blair.

A letter from Dr. W. H. Foster resigning from active membership was read and on motion, duly seconded and carried, his resignation was accepted.

The following applicants were elected to membership: *Active*: Lyman S. Abbott, Lurin P. Macklin and Henry A. Ulemeyer. *Junior*: Orr Mullinax.

On motion of Dr. F. J. V. Krebs, seconded by Dr. C. H. Shutt and carried, the amount of \$4,763.75 was set aside from the General Fund for investment, to be known as the Duncan Fund, and \$5,000 ordered paid on the debt on July 1, 1930.

Dr. C. H. Shutt reported for the committee appointed to handle the Executive Secretary's Salary Fund and asked that the committee be given more time to obtain the balance of the necessary funds. He announced, however, that money for the salary for the first year and a large portion for the second year were available. On motion, duly seconded and carried, the report was accepted.

Dr. C. A. Vosburgh reported in regard to a plaque for Dr. Alonzo R. Kieffer and on motion, duly seconded and carried, the Council was authorized to appoint a committee to arrange for a suitable exercise for the occasion.

The following were elected to corresponding membership: Drs. L. E. Belding, St. Charles; J. M. Jenkins, St. Charles; Mary A. McLoon, St. Louis; B. L. Neubeiser, St. Charles; B. P. Wentker, St. Charles.

Mr. Elmer E. Bartelsmeyer, executive secretary, reported on his activities during the past month, with especial reference to committees.

Councilors present: Drs. V. P. Blair, Lee Dorsett, John Green, Roland S. Kieffer, W. C. G. Kirchner, F. J. V. Krebs, Harry M. Moore, C. H. Neilson, C. F. Pfingsten, C. H. Shutt, C. A. Vosburgh and H. S. Langsdorf. Councilors absent: Drs. John F. Hardesty and H. Unterberg.

Visitors present: Drs. Howard H. Bell, F. C. E. Kuhlmann, Herluf Lund and F. G. Pernoud.

**Meeting of April 9**

The meeting was called to order at 8:10 p. m. by the president, Dr. Vilray P. Blair.

The report of the membership committee was read by the secretary and the following were elected to membership: *Active*: John O. Murrin. *Junior*: Thad. A. Krollicki, George S. Wilson, Dwight L. Jennings, Arthur E. Putz, and William J. Sullivan.

The application of Dr. William H. Johnston for active membership by transfer from the Muscatine County (Iowa) Medical Society was read for the first time.

The chair announced that the personnel of the economic survey committee would be as follows: Dr. LeRoy Sante, chairman; Fred W. Bailey, W. Antoine Hall, Lawrence D. Thompson and Mr. Elmer E. Bartelsmeyer.

The following were elected to corresponding membership: Drs. Lee G. Allen, Litchfield, Ill.; John H. Armstrong, Kirkwood, Mo.; F. W. Brownfield, Golden, Colo.; B. Y. Glassberg, St. Louis; B. G. Gossow, St. Charles, Mo.; Thomas L. Hardin, St. Charles, Mo.; Roy W. Merkle, Alton, Ill.; Vincent A. Schneider, St. Charles, Mo.; Arthur C. Simon, Decatur, Ill.; B. Kurt Stumberg, St. Charles, Mo.

**Meeting of May 7**

The meeting was called to order at 8:20 p. m. by the president, Dr. Vilray P. Blair.

A letter from the St. Louis Chamber of Commerce inviting the Society to join that organization was read.

It was moved by Dr. C. F. Pfingsten, seconded by Dr. Harry M. Moore, and carried, that the Society apply membership in the St. Louis Chamber of Commerce for a period of one year, and that the executive secretary act in the capacity of representative.

Dr. Vilray P. Blair stated it was possible that the Inter-State Post Graduate Medical Association of North America would meet in St. Louis in 1931, and on motion of Dr. H. Unterberg, seconded by Dr. Harry M. Moore, and carried, it was decided to invite that organization to hold its 1931 meeting in St. Louis and to offer the Society's cooperation in the committee work connected with this meeting.

The report of the membership committee was read by the secretary and on motion, duly seconded and carried, Dr. James E. Bee was elected an active member.

The report of the Committee on Health and Public Instruction was read by Dr. Vinyard and on motion, duly seconded and carried, the report was received. It was the consensus of the Council that Dr. Joseph Grindon be requested to serve with the Committee in the present vaccination situation.

The executive secretary, Mr. Elmer E. Bartelsmeyer, reported orally. On motion of Dr. C. H. Shutt, seconded by Dr. Harry M. Moore, the report was received and the matter of liability insurance was referred to the welfare committee.

The application of Dr. William H. Johnston, for active membership by transfer from the Muscatine County (Iowa) Medical Society was read for the second time and Dr. Johnston was elected a member.

Applications for corresponding membership from the following were read and all were elected: Drs. George W. Cale, Jr., Texarkana, Arkansas; E. R. Chamness, Carlinville, Ill.; G. E. Hill, Girard, Ill.; G. A. Sihler, Jr., Litchfield, Ill.

Councilors present: Drs. V. P. Blair, John Green, Roland S. Kieffer, W. C. G. Kirchner, F. J. V. Krebs, Harry M. Moore, C. H. Neilson, C. F. Pfingsten, C. H. Shutt, H. Unterberg and H. S. Langsdorf. Councilors absent: Drs. Lee Dorsett, John F. Hardesty and C. A. Vosburgh.

Visitors present: Drs. F. C. E. Kuhlmann, E. J. Schisler and Robert Vinyard.

**Meeting of General Society, February 25, 1930**

The meeting was called to order at 8:35 p. m. by the president, Dr. Vilray P. Blair.

Dr. Walter Fischel introduced the speaker of the evening, Dr. Logan Clendening, Kansas City, who talked on "Physical Diagnosis."

Dr. Blair made a few remarks in appreciation of Dr. Clendening's presentation.

Attendance, 408.

**Meeting of March 4**

The meeting was called to order at 8:35 p. m. by the president, Dr. Vilray P. Blair.

The following symposium on intestinal obstruction was given:

"Clinical Diagnosis," Dr. Frank Finnigan.

"X-Ray Diagnosis," with lantern slide demonstration, Dr. H. W. Soper.

"Pathological Physiology," with lantern slide demonstration, Dr. F. Scott Smith.

"Surgery," Dr. J. W. Thompson, Jr.

Discussion by Drs. A. F. Hartmann, Lee D. Cady, Willard Bartlett, Jr., and Drs. Soper, Hartmann and Thompson in closing.

Attendance, 166.

### Meeting of March 11

The meeting was called to order at 8:30 p. m. by the president, Dr. Vilray P. Blair.

The following symposium on jaundice was given: "Mechanism of Jaundice," with lantern slide demonstration, Dr. Charles H. Duden.

"Medical Aspects of Jaundice," Dr. Charles H. Neilson.

"Surgical Aspects of Jaundice," Dr. Wm. P. Glennon.

Discussion by Drs. Charles E. Gilliland, Hudson Talbott and M. Henry Dalton.

The resolutions pertaining to Contract Medicine which were published in the *Bulletin*, February 7 and March 7, were read by the secretary.

Dr. E. F. Schisler moved that the Society go into executive session. Seconded by Dr. R. B. H. Gradwohl and carried.

Dr. A. H. Hamel moved the following as a substitute for the resolutions:

1. That the president be authorized to appoint a committee of five members to be known as the Economic Survey Committee, one member of which shall be the executive secretary of the St. Louis Medical Society.

2. The committee to investigate and report on (a) contract practice and fees; (b) clinic abuse; (c) industrial and liability insurance; (d) workmen's compensation act; administration of same, with suggestions as to needed amendments; (e) automobile accidents, emergency treatment; (f) other related economic problems.

3. The president to appoint a Reference Committee to consist of five members, who shall be called into consultation by the Economic Survey Committee for the purpose of aiding in the outlining of resolutions for final consideration by the Society.

4. The Council of the Society is hereby authorized and requested to appropriate the necessary funds for this work.

The president made a few remarks in regard to the scope of the work of this new committee. Attendance, 258.

### Meeting of March 18

The meeting was called to order at 8:35 p. m. by the second vice-president, Dr. Charles F. Sherwin. The following symposium on rheumatism was given:

"Recent Studies of Rheumatic Fever," Dr. Ralph A. Kinsella.

"Acute Rheumatic Fever as Seen in Children," Dr. Hugh McCulloch.

"Chronic Types of Arthritis," with lantern slide demonstration, Dr. David P. Barr.

Discussion by Dr. Louis H. Behrens and Dr. Kinsella in closing.

Attendance, 217.

### Meeting of March 25

The meeting was called to order at 8:35 p. m. by the president, Dr. Vilray P. Blair.

Dr. James B. Nakada presented a case of primary carcimona of the cortex of the adrenal gland with metastasis in the skin.

Discussion by Dr. Joseph Grindon.

The following program was given:

"A Study of Lung Abscesses With Special Emphasis on Conservative Treatment," with lantern slide demonstration, Dr. H. I. Spector.

"Tumors of the Chest," with lantern slide demonstration, Dr. J. J. Singer.

"The Use of X-Ray in the Detection of Chronic Lung Suppuration," with lantern slide demonstration, Dr. L. R. Sante.

Discussion by Dr. E. Lee Myers; Dr. Spector, in closing.

Dr. A. C. Henske introduced the following resolution and moved that it be adopted. Seconded by Dr. Spector and carried:

Inasmuch as a nation-wide campaign will be launched by 1,600 state and local tuberculosis organizations affiliated with the National Tuberculosis Association for the purpose of protecting children from tuberculosis; and, inasmuch as it has always been the policy of the St. Louis Tuberculosis and Health Society to seek the approval of the St. Louis Medical Society in its medical endeavors, be it

*Resolved*, That the St. Louis Medical Society approve and endorse the campaign soon to be undertaken by the St. Louis Tuberculosis and Health Society for the purpose of protecting the children of our community against tuberculosis.

Attendance, 136.

### Meeting of April 1

The meeting was called to order at 8:35 p. m. by the first vice-president, Dr. John W. Stewart.

The following program was given:

"External Version vs. Breech Labor," Dr. Hugo Ehrenfest.

"An Early Test for Pregnancy; Its Practicability and Reliability," with lantern slide demonstration, Drs. E. S. Auer and Grover Liese.

"The Electrocardiogram of the Unborn Child," with lantern slide demonstration, Dr. George Gellhorn.

Discussion by Drs. Sexton, Ehrenfest, Liese; Dr. Auer, in closing.

Attendance, 132.

### Meeting of April 8

The meeting was called to order at 8:40 p. m. by the second vice-president, Dr. Charles F. Sherwin.

"A Tribute to Dr. William H. Welch on His Eightieth Birthday," was presented by Dr. Ernest Sachs.

Discussion by Dr. Amand Ravold.

Dr. Sachs moved that a committee of two be appointed to draft a telegram to Dr. Welch. Seconded by Dr. Hamel and carried.

The chair appointed Drs. Sachs and Ravold as a committee and the following telegram was forwarded:

The St. Louis Medical Society, at its regular meeting held tonight, extends to you its congratulations upon your eightieth birthday, and hopes that the medical profession may continue to have the benefit of your wise counsel for many years to come.

"The Treatment of Syphilis; A Review of the Methods Used by the Various Large Clinics Throughout the Country," Dr. John V. Lawrence.

"The Treatment of Cerebrospinal Syphilis," Dr. L. B. Alford.

Discussion by Drs. Lee D. Cady, A. H. Conrad, John F. Hardesty, Noxon Toomey; Dr. Lawrence, in closing.

Attendance, 162.

### Meeting of April 15

The meeting was called to order at 8:30 p. m. by the first vice-president, Dr. John W. Stewart.

The following symposium on congenital syphilis was given under the auspices of the medical committee of the Missouri Social Hygiene Association:

"Introduction," Dr. Richard S. Weiss, chairman of the committee.

"The Incidence and Familial Effects of Congenital Syphilis," Dr. Katherine Bain.

"Prenatal Care in Relation to Congenital Syphilis," Dr. George Gellhorn.

"Recent Advances in Diagnosis and Treatment of Congenital Syphilis," with lantern slide demonstration, Dr. Paul J. Zentay.

Discussion by Drs. Joseph Grindon and Jean V. Cooke.

Attendance, 251.



**Meeting of April 22**

The meeting was called to order at 8:45 p. m. by the president, Dr. Vilray P. Blair. Dr. Burford moved that the by-laws be suspended in order to proceed with the special program. Seconded and carried.

Dr. Blair announced that on this occasion the Society was honoring Dr. Alonzo R. Kieffer on the fiftieth anniversary of his practice in medicine and asked Mr. Victor S. Holm, sculptor, to unveil the bronze plaque of Dr. Kieffer, which his friends and former students were presenting to the Society.

The presentation address was made by Dr. Charles H. Neilson, who presented the plaque to the Society. Dr. Neilson also presented flowers to Mrs. Kieffer.

The plaque was received by President Blair, who made a few appropriate remarks.

An address was made by Dr. Charles A. Vosburgh on the high lights of Dr. Kieffer's life.

Dr. Kieffer expressed his thanks and appreciation for the honor bestowed upon him.

The chair announced the following as members of the Economic Survey Committee: Drs. Fred W. Bailey, W. Antoine Hall, Lawrence D. Thompson, Mr. Bartelsmeyer, and Dr. L. R. Sante, chairman.

The scientific program consisted of movietone pictures by the Electrical Research Products, Inc., as follows:

"Hernia of the Diaphragm," Dr. P. E. Truesdale, president of the New England Medical Society, operating.

"Carcinoma of the Breast," Dr. Nelson H. Lowry, Chicago, operating.

The meeting adjourned at 10:50 p. m. for a buffet luncheon and dancing.

Attendance, 334.

**Meeting of April 29**

The meeting was called to order at 8:35 p. m. by the president, Dr. Vilray P. Blair.

The speaker, Dr. Richard B. Stout, Madison, Wisconsin, was introduced by Dr. Major G. Seelig and gave a talk on "Spinal Anesthesia; Volume Control Technic," illustrated with motion pictures.

Discussion by Drs. Evarts Graham, Theodore H. Hanser, John William Thompson, Jr.; Dr. Stout, in closing.

Dr. Graham announced that Dr. Stout would give a clinical demonstration at Barnes Hospital April 30 at 9:00 o'clock, and extended an invitation to the members of the Society to attend.

Attendance, 203.

**Meeting of May 6**

The meeting was called to order at 8:45 p. m. by the president, Dr. Vilray P. Blair.

The speaker, Dr. Esmond R. Long, Chicago, was introduced by Dr. Joseph F. Bredeck and presented the subject, "Experimental Studies on Visceral Tuberculin Reactions," illustrated by lantern slides.

Dr. Howard H. Bell was called upon by the president to express the appreciation of the Society for Dr. Long's interesting address, and moved that the by-laws be suspended and Dr. Long be elected an honorary member of the Society. Seconded and carried.

Drs. Curtis H. Lohr and David Barr discussed the new ordinance in regard to the personnel of City Hospital No. 1.

The following resolution was presented by Dr. Pernoud, chairman of the hospital committee:

Whereas, By the passage of City Ordinance No. 38388, which was signed and approved by Hon. Victor J. Miller, Mayor of the City of St. Louis, on April 22, 1930, many important additions to the personnel in the city institutions have been provided for, and

Whereas, The most important addition at the City Hospital No. 1 consists of the creation of the position of medical director under the title of superintendent and physician-in-charge who will work under the direction of the visiting staff and of the hospital commissioner and whose duties will consist of the organization and the supervision of the activities of the resident staff in order to attain for our City Hospital a scientific standing and a professional reputation equal to that of similar institutions in other large cities, and

Whereas, It is of the utmost importance that a physician of unusual medical ability and with much experience in hospital organization and in graduate teaching be obtained for this position, therefore be it

*Resolved*, That the St. Louis Medical Society endorse this progressive and timely legislation and that the mayor and the hospital commissioner be requested to see that the widest publicity be given this position in order to obtain applications from desirable men; that the conference committee of the visiting staff of the City Hospital be given opportunity to consider and make recommendations in reference to these applicants, and that no candidate be appointed to the position without the endorsement of this committee.

Dr. Richard S. Weiss moved that the resolution be adopted. Seconded by Dr. Boisliniere and carried.

Dr. Pernoud moved that a copy of the resolution be sent to the Mayor of St. Louis, the Board of Aldermen and the Director of Public Welfare. Seconded and carried.

Attendance, 166.

**Meeting of May 20**

The meeting was called to order at 8:40 p. m. by the president, Dr. Vilray P. Blair.

The speaker, Dr. Lewis A. Conner, of Cornell University, was introduced by Dr. Elsworth S. Smith, and presented the subject, "The Place of Laboratory Aids in the Practice of Medicine and Surgery."

Remarks by Dr. Hugh McCulloch.

Dr. E. C. Funsch read the report of the St. Louis delegation to the Missouri State Medical Association meeting at Hannibal, May 12-15, 1930. On motion, the report was received.

Attendance, 186.

**Meeting of May 27**

The meeting was called to order at 8:50 p. m. by Dr. Louis H. Behrens, who presided in the absence of the president, Dr. V. P. Blair.

The following program was given:

"Coronary Disease," with lantern slide demonstration, Dr. Julius Jensen.

Discussion by Drs. Arthur E. Strauss, Amand Ravold, Elsworth Smith, Drew Luten, Joseph Grindon, W. P. Elmer, Louis H. Behrens; Dr. Jensen, in closing.

Dr. Joseph Grindon moved that a vote of thanks be extended to Dr. Jensen. Seconded by Dr. Henrietta A. S. Borck and carried.

"Report of a Case of Rather Unusual Therapeutic Interest With Pathological Findings," illustrated with lantern slides; Drs. Elsworth Smith and H. A. McCordock.

Discussion by Dr. Richard S. Weiss.

The following resolutions were presented by Dr. Joseph Grindon and on motion adopted:

Whereas, There is pending before the board of education of the City of St. Louis a resolution to amend Section VI of Rule 48, which requires the vaccination of school children and permits the superintendent of instruction to admit children provisionally who have not been successfully vaccinated, and

Whereas, The proposed amendment will permit the per-

manent enrollment of children not vaccinated on authorization of the superintendent of instruction, therefore be it

*Resolved*, That the St. Louis Medical Society unequivocally endorse and support the practice of vaccination for the following reasons:

One successful vaccination confers life-long immunity against smallpox in a large proportion of cases.

Two successful vaccinations done at an interval of approximately ten years confer life-long protection against smallpox.

Vaccination is upheld by the medical faculties of all universities the world over and by practically all reputable physicians in the world.

It is enforced by most governments, and favored by all. It is practically compulsory in the armies and navies of all civilized countries.

During the World War the medical officers of the army and navy vaccinated approximately 6,000,000 persons without a fatality.

St. Louis is one of the best protected cities by vaccination in America, and has not experienced a severe visitation of smallpox in twenty-seven years, whereas within the same time there have been outbreaks with a heavy proportion of deaths in a number of American cities which were poorly protected.

The good effect of the present rule is shown in the freedom of our public school children from smallpox. In the last thirty-two years there has not been a single case of smallpox in a successfully vaccinated child.

The arguments that have been adduced against it vanish utterly in the light of modern scientific investigation, and be it further

*Resolved*, That the St. Louis Medical Society oppose any change in the rules relating to the vaccination of pupils in the public schools.

Dr. Richard S. Weiss moved that a copy of the resolutions be sent to the board of education, the mayor, and to the newspapers. Seconded and carried.

Attendance, 120.

HERBERT S. LANGSDORF, M.D., Secretary.

## ST. LOUIS COUNTY MEDICAL SOCIETY

A special meeting of the St. Louis County Medical Society was held April 7 at the home of Dr. William F. O'Malley, Kirkwood. The meeting was called to order by President R. B. Denny, Creve Coeur, at 8:45 p. m. with the following present: Drs. Howard Carter, C. P. Dyer, M. E. Hagerty, J. D. Hayward, G. Jones, Mary A. McLoon, Joseph McNearney, L. C. Obrock, C. D. Pickrell, J. A. Sterling, Otto J. Wilhelmi and L. A. Will, of St. Louis; C. H. Denny, Marriott Morrison, H. L. Meador, C. F. Rosenberger and J. D. Stoelzle, of Clayton; Irene M. Blanchard, C. E. Colgate, H. N. Corley, F. P. Gaunt, C. C. Irick, W. F. O'Malley and A. W. Westrup, of Webster Groves; J. H. Armstrong, E. O. Breckenridge, C. H. Leslie and R. H. Trumpour, of Kirkwood; Leander W. Cape, P. N. Davis, W. H. Townsend and E. E. Tremain, of Maplewood; J. A. Prichard, R. A. Walther and P. R. Whitener, of Overland; J. H. Sutter, University City; R. B. Denny and H. M. Denny, of Creve Coeur; F. J. Petersen, Richmond Heights; F. P. Knabb, Valley Park; J. A. Townsend, Eureka.

On motion of Dr. R. A. Walther, Overland, seconded by Dr. E. O. Breckenridge, Maplewood, and carried, the president appointed a committee of six to meet with him and the superintendent of the St. Louis County Hospital to select the staff and then present the names to the Society for approval. The committee consisted of Drs. P. N. Davis, C. P. Dyer, Garnett Jones, Otto Koch, W. F. O'Malley and W. H. Townsend. At the executive meeting of the committee the staff was selected and on motion of Dr. E. O. Breckenridge, seconded by Dr. C. H. Denny, the names were approved by the Society.

### Meeting of April 9

The regular meeting of the Society was held at

the United States Veterans' Hospital, Jefferson Barracks, Wednesday, April 9. The president, Dr. R. B. Denny, Creve Coeur, called the meeting to order at 3:00 p. m. with the following present: Drs. H. M. Denny and R. B. Denny, of Creve Coeur; F. J. Petersen, Richmond Heights; E. O. Breckenridge, E. E. Tremain and W. H. Townsend, of Maplewood; H. N. Corley and C. C. Irick, of Webster Groves; J. A. Prichard and R. A. Walther, of Overland; Howard Carter, C. P. Dyer, Harry Greensfelder, Garnett Jones, L. C. Obrock, Otto Koch, E. M. Schmidt and J. A. Sterling, of St. Louis; D. Henry Hanson, Kirkwood; F. P. Knabb, Valley Park.

Visitors: Drs. Bergeron, Doyle, Finot, Freed, Gibson, Hardman, Hagerty, Kiehnhoff, Reed, Schurtz, Scott, Walsh and Wheeler, of the Veterans' Hospital.

The scientific program was given by members of the hospital staff, as follows:

Address of Welcome, by Dr. W. C. Gibson, medical officer in charge.

"Procedures of Admission and Examination of Patients," by Dr. C. H. Smith, clinical director.

"Mesodermal Interstitial Neurosyphilis with Subsequent Tetraplegia (Spastic)," by Dr. R. E. Doyle, chief of the neuropsychiatric service.

"Focal Infection in Chest Disease," by Dr. E. K. Schurtz, chief of the tuberculosis service.

Dr. J. E. Wheeler, chief of the orthopedic service, spoke on "Fractures." The subjects covered were (1) Fractured neck of femur with bone peg operation; (2) compound comminuted fracture of tibia and fibula treated with skeletal traction; (3) use of Malgaigne clamp in fracture of patella; (4) tuberculosis of hip; (5) Gritti-Stokes amputation; (6) synovectomy for chronic synovitis of knee; (7) Turntable bone graft for nonunion of transverse fracture of tibia.

"Double Compound Fracture of Lower Jaw," by Dr. J. E. Wheeler and Dr. O. R. Reed, chief of the dental service.

"Report of Two Cases of Undulant Fever," by Dr. H. Freed, chief of the reception service.

"Case of Myocarditis," by Dr. E. T. Gallagher, chief of the medical service.

"Genito-Urinary Anomaly," by Dr. G. W. Kiehnhoff, chief of the surgical service.

The X-ray pictures of the cases presented were shown by Dr. H. A. Scott, roentgenologist.

A rising vote of thanks was given Dr. C. H. Smith and the hospital staff for the splendid program.

At the business meeting, Dr. Garnett Jones read the following resolutions on the death of Dr. L. A. Bradbury:

WHEREAS, It has pleased an All-Wise Providence to call from our midst one of our highly esteemed members, Dr. Lewis Bradbury, therefore be it

*Resolved*, that the members of our Society extend our sympathy to his widow.

Second, That a copy of these resolutions become a part of the minutes of this meeting and a copy be sent to his widow.

Third, That our Society has lost a valued member and that we shall hold his life worthy of emulation.

GARNETT JONES, M.D.,  
H. N. CORLEY, M.D.,  
Committee.

On motion, duly seconded and carried, the resolutions were adopted by the Society.

Dr. M. E. Hagerty, St. Louis, was elected a member by transfer from the St. Louis Medical Society.

Drs. A. M. Thompson, W. R. Hewitt and L. G. McCutchen, St. Louis, were elected corresponding members.



A very delightful luncheon served following the meeting was greatly enjoyed.

#### Meeting of April 23

The adjourned meeting of the St. Louis County Medical Society was held Wednesday evening, April 23, at the home of Dr. Wm. F. O'Malley, Kirkwood.

The meeting was called to order by the president, Dr. R. B. Denny, Creve Coeur, with the following members present: Drs. R. B. Denny, Creve Coeur; R. E. Baker, H. N. Corley, Webster Groves; F. A. Dill, E. O. Breckenridge, Maplewood; C. H. Denny, Clayton; F. C. E. Kuhlmann, F. J. Petersen, M. E. Hagerty, G. Jones, O. W. Koch, M. A. McLoon, L. G. McCutchen, St. Louis; W. F. O'Malley, D. H. Hanson, Kirkwood; J. H. Sutter, University City; and J. A. Townsend, Eureka.

The minutes of the previous meeting were read and approved.

Drs. M. E. Custer, J. H. McGrath, G. V. Stryker, and Dr. Andy Hall, of St. Louis, were voted into the Society as corresponding members.

A communication from the Missouri State Medical Association with regard to the Widow's Fund was read. Delegates to the state meeting were not instructed on this proposition.

Dr. L. G. McCutchen, St. Louis, read a paper on "The Use of the Biplane Fluoroscope in the Reduction of Fractures and Foreign Bodies Using Two X-Ray Tubes at the Same Time." This paper was well received and discussions followed by Drs. Denny, McLoon, and James Townsend.

#### Meeting of May 14

The regular meeting was held at the home of Dr. Wm. F. O'Malley, Kirkwood, May 14. The meeting was called to order by the president, Dr. R. B. Denny, Creve Coeur, at 3:00 p. m.

Dr. Marriott R. Morrison, St. Louis, and Dr. Paul E. Rutledge, Webster Groves, were voted into the Society as active members.

The program consisted of a paper by Dr. C. F. Sherwin, St. Louis, on "Emergency of Fractures," illustrated with lantern slides. Dr. Sherwin was given a rising vote of thanks.

Dr. R. H. Trumpour, Kirkwood, presented an interesting skin case.

The following members were present: Drs. W. H. Townsend, E. O. Breckenridge, E. E. Tremain, Maplewood; G. Jones, St. Louis; H. N. Corley, A. W. Westrup, and R. E. Baker, Webster Groves; J. D. Stoelzle, Clayton; J. H. Sutter, University City; W. F. O'Malley, R. H. Trumpour, and C. H. Leslie, Kirkwood; and R. B. Denny, Creve Coeur. Visitor, Dr. C. F. Sherwin, St. Louis.

#### Meeting of May 28

The adjourned meeting of the Society was held May 28 at the home of Dr. Wm. F. O'Malley, Kirkwood.

The meeting was called to order by the president, Dr. R. B. Denny, Creve Coeur, at 8:30 with the following members present: Drs. R. B. Denny, and H. Denny, Creve Coeur; R. E. Baker, Irene M. Blanchard, Webster Groves; Mary A. McLoon, C. P. Dyer, L. C. Obrock, F. J. Petersen, G. Jones, G. V. Stryker, and F. L. Finley, St. Louis; J. H. Sutter, University City; W. H. Townsend, E. O. Breckenridge, E. E. Tremain, Maplewood; C. H. Denny, Clayton; and W. F. O'Malley, Kirkwood. Visitor: Dr. R. W. Stuebner, St. Louis.

The minutes of the last meeting were read and approved.

Dr. C. P. Dyer, St. Louis, delegate to the State

Meeting, made an interesting report of his trip. He turned in the expense accounts for himself and Dr. O. W. Koch, St. Louis, covering their trip to the meeting, totaling \$32. Dr. Dyer told the Society that he and Dr. Koch desired that this amount be set aside to create a fund to buy a daylight lantern for the Society.

Dr. R. W. Stuebner, St. Louis, gave an interesting paper on "Varicose Veins and Varicose Ulcers," illustrated with lantern slides.

#### Meeting of June 11

The Society met at the home of Dr. William F. O'Malley, Kirkwood, Wednesday, June 11, at 3:30 p. m., the president, Dr. Robert B. Denny, Creve Coeur, presiding. The following members were present: Dr. Irene M. Blanchard, H. N. Corley, C. C. Irick, W. F. O'Malley and A. W. Westrup, of Webster Groves; D. Henry Hanson, Kirkwood; H. Gage, Garnett Jones, L. C. Obrock and Otto W. Koch, of St. Louis; J. H. Sutter, University City; F. J. Petersen, Richmond Heights; J. D. Stoelzle, Clayton; E. O. Breckenridge, Leander W. Cape, E. E. Tremain and W. H. Townsend, of Maplewood; H. M. Denny and R. B. Denny, of Creve Coeur. The minutes of the previous meeting were read and approved.

Dr. D. L. Sexton, of St. Louis, read an instructive paper on "Endocrinology," which was appreciated by all the members. The subject was discussed by Drs. Otto W. Koch and A. W. Westrup.

The Society adjourned until September.

E. E. TREMAIN, M.D., Secretary.

#### ST. FRANCOIS-IRON COUNTY MEDICAL SOCIETY

The St. Francois-Iron County Medical Society met in regular session June 27, at 8:00 p. m. in the office of Dr. W. E. Aubuchon, Leadwood. The president, Dr. Emmett F. Hctor, Farmington, presided. The Society had as its guests Drs. Edgar F. Schmitz and August A. Werner, of St. Louis, who were sent by the Postgraduate Committee of the State Association.

Dr. Schmitz gave an interesting talk on "Methods for the Reduction of Mortality and Morbidity in Obstetrics."

Dr. Werner read an instructive paper on "The Menopause, Artificial and Natural" illustrated with lantern slides.

Both subjects were much enjoyed by the members and provoked lengthy discussions.

A new committee on medical ethics was appointed by President Hctor, namely: Drs. D. E. Smith, Bonne Terre; W. E. Aubuchon, Leadwood; R. Appleberry, Farmington.

RALF HANKS, M.D., Secretary

#### VERNON-CEDAR COUNTY MEDICAL SOCIETY

The Vernon-Cedar County Medical Society met in the surgical wing of State Hospital No. 3, Nevada, Monday, April 14, at 7:30 p. m. The meeting was entirely clinical and a number of cases were presented for operation.

At the conclusion of the scientific program the members and visitors were entertained by Dr. Johns, superintendent of the hospital, and Mrs. Johns. Refreshments were served.

Those present were Dr. Edwin Lee Miller and Dr. A. M. Ziegler, of Kansas City; Dr. and Mrs.

W. H. Sitton, Jerico Springs; Drs. Richardson & Richardson, of Tiffin; Dr. C. B. Davis, Walker; Drs. George H. Johns, T. T. O'Dell, W. S. Love, H. E. O'Neal and J. M. Yater, of Nevada; Katherine Suyetoff, Viola Johns, F. L. Martin, W. L. Davis and Mr. Grogan, of Nevada.

J. T. HORNBACK, M.D., Secretary.

## WRIGHT-DOUGLAS COUNTY MEDICAL SOCIETY

The Wright-Douglas County Medical Society met in the K. P. Hall at Mountain Grove, May 1, at 2:00 p. m., with the following members present: Drs. E. C. Wittwer, R. A. Ryan, and A. C. Ames, of Mountain Grove; J. L. Gentry, M. C. Gentry, and R. M. Norman, Ava; J. A. Fuson, Mansfield; J. C. B. Davis, Willow Springs. Visitor, Dr. E. G. Beers, Seymour.

The meeting was opened by the vice president, Dr. M. C. Gentry, Ava, and the minutes of the last meeting were read and approved.

The delegate to the State Meeting, Dr. R. M. Norman, Ava, being unable to attend, and the alternate, Dr. E. C. Wittwer, Mountain Grove, not certain he could go, it was voted to authorize the secretary to issue credentials to any member who could go in case Dr. Wittwer could not.

The secretary read an announcement from the Michael Reese Hospital, Chicago, concerning post-graduate courses offered prior to the meeting of the American Medical Association in Detroit.

A letter was read from Dr. E. J. Goodwin, St. Louis, urging the Society to write to our senators at Washington asking them to delay action on the Porter Bill amending the Harrison Narcotic Law until the American Medical Association could be heard on some objectionable features. The secretary also read a copy of his letter to the senators and their replies.

The secretary read a letter from Dr. Frank I. Ridge, Kansas City, in regard to the proposed Widow's Fund, now under contemplation by the State Association. This was discussed by Dr. J. C. B. Davis, Willow Springs, and others.

A letter was read from the secretary of the Muscatine County (Iowa) Medical Society in regard to radio broadcasting of a cancer quack of that place. It included some extracts of his railing against the regular medical profession and organized medicine. Dr. E. C. Wittwer, Mountain Grove, told of a doctor at Milford, Kansas, who is doing the same thing. It was the unanimous sentiment of those present that something should be done to bar such men from the use of the radio to poison the minds of the uninformed public.

The secretary read a letter from the Cole County Medical Society asking instruction of delegates to the state meeting to work for a reduction in the dues to the State Medical Association. The question was explained by Dr. J. C. B. Davis, Councilor for the district, and it was voted to instruct the delegate to vote with the leaders of organized medicine rather than with those who would hamper its work for want of funds.

Dr. Wittwer talked on the collection of doctors' bills and suggested a credit bureau among physicians as a help. On vote the chairman appointed Dr. Wittwer and the secretary, Dr. A. C. Ames, Mountain Grove, as a committee to devise a plan and report at the next meeting, to be held in Mansfield in August.

The meeting adjourned and most of those present attended the opening of the Ryan Hospital.

A. C. AMES, M.D., Secretary.

## WOMAN'S AUXILIARY

### OFFICERS 1929-30

President, Mrs. M. P. Ravenel, Columbia.  
President-Elect, Mrs. A. W. McAlester, Kansas City.

1st Vice President, Mrs. U. J. Busiek, Springfield.  
2nd Vice President, Mrs. James F. Owens, St. Joseph.

3rd Vice President, Mrs. H. C. Brashear, Mexico.  
4th Vice President, Mrs. L. G. McCutchen, St. Louis.

Corresponding Secretary, Mrs. C. M. Sneed, Columbia.

Recording Secretary, Mrs. David S. Long, Harrisonville.

Treasurer, Mrs. R. C. Haynes, Marshall.

Auditor, Mrs. C. T. Ryland, Lexington.

Directors (2 years): Mrs. W. W. Ford, Gordonville; Mrs. Harry F. Parker, Warrensburg; Mrs. F. H. Spencer, St. Joseph; Mrs. C. C. Cummings, Joplin; Mrs. Raymond Spivy, St. Louis. (1 year): Mrs. T. S. Fleming, Moberly; Mrs. S. F. Freeman, Springfield; Mrs. Robert McE. Schaffler, Kansas City; Mrs. Hudson Talbott, St. Louis; Mrs. J. J. Gaines, Excelsior Springs.

### LAFAYETTE COUNTY AUXILIARY

The Woman's Auxiliary to the Lafayette County Medical Society held an interesting meeting at the home of Mrs. W. A. Braecklein, Higginsville, Tuesday, April 22, 1930.

### CLAY COUNTY AUXILIARY

The Woman's Auxiliary to the Clay County Medical Society met conjointly with the Medical Society at the Odd Fellows Hospital in Liberty, June 26. A noon dinner was served to about thirty members by the girls of the Home.

## TRUTH ABOUT MEDICINES

### NEW AND NONOFFICIAL REMEDIES

**BUTESIN PICRATE EYE OINTMENT.**—An ointment containing 1 per cent of butesin picrate (New and Nonofficial Remedies, 1929, p. 54) in a petrolatum base. Abbott Laboratories, North Chicago.

**PNEUMOCOCCUS ANTIBODY SOLUTION, Types I, II and III Combined.**—Mulford. (New and Nonofficial Remedies, 1929, p. 346.)—This product is also marketed in packages of four 50 cc. double-ended vials with one complete intravenous outfit. H. K. Mulford Co., Philadelphia.

**AMPULES DEXTROSE (d-Glucose) 10 Gm., 20 cc.**—Each ampule contains dextrose (New and Nonofficial Remedies, 1929, p. 240) 10 Gm., in distilled water, to make 20 cc. Lakeside Laboratories, Inc., Milwaukee, Wis.

**AMPULES SODIUM CACODYLATE 0.243 Gm. (3¾ grains) 5 cc.**—Each ampule contains sodium cacodylate (New and Nonofficial Remedies, 1929, p. 73) 0.243 Gm. (3¾ grains) in 5 cc. of solution. Lakeside Laboratories, Inc., Milwaukee, Wis. (Jour. A. M. A., March 1, 1930, p. 634.)

**SQUIBB'S DEXTRO-VITAVOSE.**—A mixture of Squibb's vitavose (New and Nonofficial Remedies, 1929, p. 244), 1 part, and Dextrose, 2 parts. E. R. Squibb & Sons, New York. (Jour. A. M. A., March 29, 1930, p. 920.)



## FOODS

The following products have been accepted as conforming to the rules of the Committee on Foods of the Council on Pharmacy and Chemistry of the American Medical Association:

**PETER PAN BREAD** (P. F. Peterson Baking Co., Omaha). A thoroughly baked, white bread having a soft velvety texture and sweet flavor.

**CLAPP'S ORIGINAL APPROVED BABY SOUP AND STRAINED VEGETABLES** (Harold H. Clapp, Inc., Rochester, N. Y.). Baby Soup: A combination of beef juice and vegetables. Wheatheart Soup: A combination of wheat germ, vegetables and cereals. Strained Vegetables: Spinach, wax beans, carrots, asparagus, peas, beets, prune pulp, apricot pulp and tomatoes. In these products all possible food values are retained and the least amount of water is used in cooking.

**CHECKER-REDI COOKED OATS OR CHECKER ROLLED OATS** (Ralston Purina Co., St. Louis). Checker-Redi cooked Oats have been precooked to bring out their mellow flavor and to make them quickly prepared and easily digested.

**MINUTE GELATIN** (Minute Tapioca Co., Inc., Orange, Mass.). Pure granulated gelatin offered in convenient size cartons for household use. (Jour. A. M. A., March 1, 1930, p. 635.)

**BORDEN'S SWEET CHOCOLATE FLAVOR MALTED MILK** (The Borden Co., New York). It has the following average composition: fat 6.7%; protein 9.7%; sucrose 47.8%; other carbohydrates (maltose, dextrin, lactose) 31.0%; ash 2.4%; insoluble chocolate solids 0.4%; moisture 2.0%. This product differs from other chocolate malted milks in that the cocoa is cooked.

**QUAKER PUFFED WHEAT** (The Quaker Oats Co., Chicago). It is made from whole wheat; 25 per cent is bran. The minerals are retained. Puffed Wheat with whole milk is approximate in energy value to a dish of hot cooked cereal.

**QUAKER OATS** (The Quaker Oats Co., Chicago). Brands: Quick Quaker Oats; Rolled Quaker Oats; Mother's Oats; Quick Mother's Oats. Quaker Oats provides 50 per cent more protein than wheat, 60 per cent more than wheat flour, more than twice as much as rice; 100 per cent more than cornmeal. It is rich in minerals and vitamin B.

**INSTANT POSTUM** (Vacuum Cereal Beverage) (Postum Co., Inc., Battle Creek, Mich.). A beverage made only of whole wheat and bran roasted with a small portion of sugar-cane molasses. It contains no caffeine.

**POSTUM CEREAL** (Postum Co., Inc., Battle Creek, Mich.). It is made only of whole wheat and bran roasted with a small portion of sugar-cane molasses. It contains no caffeine.

**SAC-A-RIN BRAND OF CANNED VEGETABLES** (Kings County Packing Co., Oakland, Calif.). Brands: California Tomatoes; California Asparagus; California Spinach. These are vegetables packed without added salt or sugar for dietetic purposes. For use when an intake of carbohydrate—particularly sugar—is to be restricted.

**SANKA COFFEE** (Sanka Coffee Corporation, Brooklyn and Los Angeles). A blend of South American coffee with Mocha and Java. The caffeine is removed by a process which removes 97 per cent or more of the caffeine originally present in the bean (based on 1.1 per cent of caffeine). It may be used when other coffee has been forbidden.

**MILK PACKED COCOANUT** (Franklin Baker) (Franklin Baker Co., Hoboken, N. J.). The shredded cocoanut is packed in cans without the addition of sugar, the can being filled with cocoanut milk.

**FRANKLIN BAKER PREMIUM COCOANUT** (Franklin Baker Co., Hoboken, N. J.). The shredded cocoanut is mixed with added sugar and 5 per cent glycerin and passed through driers.

**SOUTHERN STYLE COCOANUT** (Franklin Baker) (Franklin Baker Co., Hoboken, N. J.). Cocoanut meat is passed through an automatic shredding machine, after which the added sugar is mixed with the cocoanut meat, the resultant product being passed through driers. The product is packed in cans in an atmosphere of carbon dioxide.

**HELLMAN'S MAYONNAISE** (Richard Hellmann, Inc., Long Island City, N. Y.). It is made from a blend of edible vegetable oils, vinegar, egg yolk, spices and condiments beaten to a stable emulsion.

**MINUTE TAPIOCA** (Minute Tapioca Co., Inc., Orange, Mass.). It is made from tapioca flour. The flour is bolted, mixed with water, steam cooked, granulated and dried.

**ASSOCIATION OF HAWAIIAN PINEAPPLE CANNERS.** On the basis of an average of representative samples of Hawaiian pineapples there is obtained a value of 88 calories per hundred grams of canned pineapple. There are better sources of a single vitamin, but as an all around source of vitamins the pineapple takes unusually high rank. Canned pineapple is an article of diet of substantial food value. (Jour. A. M. A., March 8, 1930, p. 716.)

**DIPHTHERIA TOXIN-ANTITOXIN MIXTURE 0.1 L + NONSENSITIZING** (Sheep).—A diphtheria toxin-antitoxin mixture (New and Nonofficial Remedies, 1929, p. 360), each cc. of which constitutes a single dose of diphtheria toxin neutralized with the proper amount of antitoxin produced from sheep. It is marketed in packages of three vials, each containing 1 cc.; in packages of one vial containing 10 cc.; in packages of one vial containing 30 cc.; and in packages of thirty vials, each containing 1 c. United States Standard Products Co., Woodworth, Wis.

**TABLETS TUTOCAIN No. 6.**—Each tablet contains tutocain (New and Nonofficial Remedies, 1929, p. 51) 0.05 Gm. Winthrop Chemical Co., Inc., New York.

**AMPOULES OF PITOCIN 0.5 cc.**—Each ampule contains more than 0.5 cc. of pitocin solution (Jour. A. M. A., July 13, 1929, p. 117). Parke, Davis & Co., Detroit.

**MERTHIOLATE JELLY 1:2,000.**—It contains merthiolate (Jour. A. M. A., December 7, 1929, p. 1809) 0.05 per cent, eucalyptol 0.016 per cent, eugenol 0.016 per cent in a water-soluble base. Eli Lilly & Co., Indianapolis.

**MERTHIOLATE OINTMENT 1:1,000.**—It contains merthiolate (Jour. A. M. A., December 7, 1929, p. 1809) 0.1 per cent in a petrolatum base. Eli Lilly & Co., Indianapolis. (Jour. A. M. A., April 19, 1930, p. 1237.)

**KLIM POWDERED WHOLE MILK** (Merrell-Soule Co.). It is whole milk from which all but about 2 per cent or less of the normal water has been removed by means of the spraying process of drying milk. It contains: fat, 28.0 per cent; protein, 26.7 per cent; lactose, 38.0 per cent; ash, 5.8 per cent; water, 1.5 per cent. Klim milk is used for supplementary feeding to be used according to a physician's formula.

**MELLIN'S FOOD** (Mellin's Food Co., Boston). It is a milk modifier. It contains: fat, 0.16; protein, 10.35; maltose, 58.88; dextrans, 20.69; soluble carbohydrates, 79.57; salts, 4.30; water, 5.62. Mellin's Food is a soluble, easily digestible dry extract made from wheat flour, wheat bran, malted barley and potassium bicarbonate.

## BOOK REVIEWS

**TONSIL SURGERY.** Based on a Study of the Anatomy. By Robert H. Fowler, M.D., Fellow of the New York Academy of Medicine, etc. 103 illustrations, including 10 full-page color plates. Philadelphia: F. A. Davis Company. 1930. Price \$10.00.

This volume is a masterpiece in its field as well as a work of art. It is filled with the best knowledge pertaining to the surgery of the tonsil.

It gives the tried procedures and the technical methods of masters in such a lucid and graphic manner that anyone with surgical sense and skill can quickly and accurately accumulate the best that is to be had on this subject. Much of the text and plates are making their first appearance, and with a refreshing assurance that gives the subject intense interest.

To the otolaryngologist who is alert to obtain the best, especially where the artistic and scientific are so finely balanced, it should have a great appeal; and for the student and beginner it is an accurate guide and counsel. C. F. P.

**ROENTGENOGRAPHIC TECHNIQUE.** A Manual for Physicians, Students, and Technicians. By Darnon Artelle Rhinehart, A.M., M.D., Professor of Roentgenology and Applied Anatomy, School of Medicine, University of Arkansas, etc. With 159 illustrations. Philadelphia: Lea & Febiger. 1930. Price \$5.50.

This volume is intended to show the roentgenographic technic to be used for all parts of the body. The author states in his preface that "all books on roentgenographic technic are either obsolescent or incomplete." After reading the volume I am unable to see that the author has added much that is new. Much of the copy is found in catalogs, especially in the chapters on electricity and electric currents, roentgen machines, tubes, dark room technic and positioning of the body for exposures.

There are many suggestions which will be of great help to the technician of limited experience. To the doctor who is trying to do his own work the book will be helpful for the mechanical work connected with the X-ray laboratory. E. H. K.

**SELECTED READINGS IN PATHOLOGY FROM HIPPOCRATES TO VIRCHOW.** By Esmond R. Long, Professor of Pathology, University of Chicago. Springfield, Illinois, Baltimore, Maryland: Charles C. Thomas. Price \$3.50.

It is important to have collected together in English such an interesting original series of excerpts from the classics of pathology. Not only should every medical student be enthused with the desire to read this book but it should be on the desk of every physician to be scanned in his leisure moments. What greater voyage of discovery could the student want than to read in the original words of the author descriptions of "Hunterian chancre," "Bright's disease," "Hodgkin's disease," "Addison's disease," and so on? Thirty-five authors are included to each of whom is given a short but concise biographical introduction. It is thus that the reviewer learned that the first textbook of pathology published in the United States was written by William Edmonds Horner—one of the things he never knew before.

The book is beautifully printed and illustrated by twenty-five full-page plates. R. L. T.

**UTERINE TUMORS.** By Charles C. Norris, M.D., Professor of Gynecology and Obstetrics and Director of the Department, University of Pennsylvania; Gynecologist and Obstetrician, Hospital of the University of Pennsylvania, etc. New York: Harper & Brothers. 1930. Price \$3.00.

This volume is written in an extremely readable style and is more or less a complete resumé of the subject. Uterine and cervical carcinoma are given considerable space as is the subject of myoma. It seems that the methods of staining and cutting of sections could well be omitted for they have no place in a monograph of this kind.

Under each subject the author stresses the differential diagnosis of malignancy and were these rules followed, more early malignancies would be uncovered with a decrease in the ultimate death rate.

Illustrations have been cut to an absolute minimum due, no doubt, to the low price of the volume. The monograph will be of value to the general practitioner but is not suitable as a reference work to the specialist or the medical student. E. A.

**PRACTICAL PSYCHOLOGY AND PSYCHIATRY.** For Use in Training-Schools for Attendants and Nurses and in Medical Classes, and as a Ready Reference for the Practitioner. By C. B. Burr, M.D., Late Medical Director Oak Grove Hospital (Flint, Mich.), for Mental and Nervous Diseases, etc. Sixth edition, revised and enlarged, with illustrations. Philadelphia: F. A. Davis Company. 1930. Price \$2.75.

This book contains many important and profitable points in the treatment of mental sickness. It will be helpful to those who because of their "scientific" training are not acquainted with the older and tried forms of treatment in well-conducted sanatoria.

The portion dealing with insanity contains a good description of mental reactions under appropriate headings, a description of dementia praecox, general paralysis of the insane, manic-depressive and senile psychoses, epilepsy and pellagra.

That part of the book dealing with psychology is made up of a sketchy account of life and mind, the attributes of life and body. A short but, to the reviewer, inadequate discussion of behaviorism is presented. The author does not present any of the tools: conflict, repression, regression, etc., of the "new psychology." However, in the discussion of symbolism some of the psychoanalytic mechanisms are touched on. The real psychology of this book is the old faculty psychology.

It is certainly a practical and helpful treatise on the management of the mentally sick who go to sanatoria. There is, however, an absence of a deeper approach to mentally sick patients. This is a defect, for it is certainly very profitable after a patient has recovered from an acute attack to give him insight and through that means attempt to prevent a recurrence.

Under mental hygiene we find a good many practical points about child guidance. "Child guidance is usually adult psychiatry for it means guiding adults." The author strikes a hard blow at the "new methods" of education. They are too comfortable, he thinks. He does not mention that the trend of modern education is practically the same as that of mental hygiene; training the emotions, developing right attitudes, giving, through practice, tools to children that will help them to make satisfactory adjustments to reality all the way through life. G. L. H.



THE BACTERIOPHAGE AND ITS CLINICAL APPLICATIONS. By F. D'Herelle, Professor of Bacteriology, Yale University School of Medicine. Translated by George H. Smith, Professor of Immunology, Yale University School of Medicine. Charles C. Thomas, Springfield, Illinois. 1930. Price \$4.00.

The idea of the volume is to present the subject of bacteriophagy to the practitioner of medicine as simply as possible. Now that some of the commercial drug houses are advertising bacteriophage this book should be of interest to those who wish a general history and review of the subject.

There is no question regarding the author's opinion of this subject as also his opinion of those who have had the temerity to criticise some of his work. Whether or not we believe with the author that "the whole time-honored biological structure is shaking on its foundation," nevertheless we cannot fail to be interested in the subject of bacteriophagy.

R. L. T.

MANUAL OF PHYSICAL AND CLINICAL DIAGNOSIS. By Dr. Otto Seifert (Late Professor of Medicine, Wuerzburg), and Dr. Friedrich Mueller (Professor of Medicine, II Med. Clinic, Munich). Authorized Translation from the Twenty-Fourth German Edition by E. Cowles Andrus, M.D., Associate in Medicine, Johns Hopkins University, and Associate Physician, Johns Hopkins Hospital. 140 illustrations and 3 colored inserts. Philadelphia: J. B. Lippincott Company.

The translator thinks of this as a volume which should be in the pocket of interns. As such, it will probably be of considerable value because it affords reminders of the various possibilities and names of syndromes when facing the individual patient. It would also be an excellent book to use in reviewing for examinations because it is both complete and orthodox.

The binding and paper make this a very prepossessing volume. The illustrations are well done and are for the most part of the classic type. The text is concise.

G. H. H.

THE ELEMENTS OF THE SCIENCE OF NUTRITION. By Graham Lusk, Ph.D., Sc.D., LL.D., F.R.S., (Edin.) Professor of Physiology at the Cornell University Medical College, New York City. Fourth edition, reset. Philadelphia and London: W. B. Saunders Company. Price, cloth, \$7.00.

The fourth edition of Graham Lusk's classical book brings the scientific data on nutrition in health and disease up-to-date. The difficulties of treating so vast a subject and condensing an enormous literature are great. These difficulties have been strikingly overcome in the present edition.

Physicians hoping to find in this book a condensed short cut to a knowledge of nutritional problems will be disappointed. It is essentially a reference book with the more important results of research brought together, containing a full bibliography and therefore invaluable to both laboratory worker and practicing physician as a storehouse of carefully selected data. In this day of dietary fads such a book must have a powerful influence. It cannot be too highly recommended to physicians and dietitians as a work which should be read studiously and referred to constantly.

A. B. D.

THE SURGICAL CLINICS OF NORTH AMERICA. (Issued serially, one number every other month.) Volume 10, No. 3. (New York Number—June, 1930.) Per Clinic Year, February 1930 to December 1930. Philadelphia and London: W. B. Saunders Company. 1930. Paper, \$12.00; cloth, \$16.00 net.

This is the New York number and contains 265 pages with 123 illustrations. A large variety of cases are discussed by twenty-four contributors.

NORMAL FACTS IN DIAGNOSIS. By M. Coleman Harris, M.D., Lecturer on Physical Diagnosis, New York Homeopathic Medical College and Flower Hospital, etc., and Benjamin Finesilver, M.D., Lecturer on Diseases of the Nervous System, New York Homeopathic Medical College and Flower Hospital, etc. Illustrated with forty-two engravings, some in colors. Philadelphia: F. A. Davis Company. 1930. Price \$2.50.

This book should prove to be very useful. It outlines in orderly fashion those physical facts and appearances, with their variations, which should be known to all medical men as normal conditions. It seems difficult to fully impress these normal conditions on the student whose interest and effort is expended upon acquisition of knowledge of pathological conditions and who loses sight of the background of the normal on which judgment must be based. This book may be said to do for physical diagnosis what is done for surgery under the name of topographical anatomy.

Though the treatment of the subject in general is adequate, it is disappointing to find on page 125 the perpetuation of the rule of thumb that roughly "the normal blood pressure is a little less than the age plus one hundred." This, in spite of the fact that the table on the following page distinctly disproves the statement. Also, one wonders whether it is correct as stated on page 142 that normally the liver and kidneys are not palpable. It is hoped that future editions, which the book merits, will be combed for inaccuracies of this type.

W. B.

MODERN OTOTOLOGY. By Joseph Clarence Keeler, M.D., F.A.C.S., Associate Professor of Otolaryngology, Jefferson Medical College; Otolaryngologist, Germantown Hospital, etc. 90 original illustrations and 15 colored plates. Philadelphia: F. A. Davis Company. 1930.

In the preface of this textbook the author suggests that a textbook writer who enters for the first time a field where numerous others have preceded him feels the necessity of offering explanations and apologies for his temerity. In reviewing Dr. Keeler's work on "Modern Otology" such fears are groundless because he has given to the profession a textbook which should satisfy the most fastidious.

The subject matter is arranged in such sequence and is so logical in its unfolding that it carries the reader through the field of otology in a way best suited to clinical observation and practice. Particularly should the arrangement of this book appeal to the beginner, for the illustrations are exceptionally clear and to the point and sustain the reading matter admirably. To the experienced otologist this book fills a long-felt want because of the extensive bibliography which follows the discussion of each phase of otology. This enables the busy specialist not only to get at the broad, accepted facts

pertaining to the subject in question but he has at hand sufficient references to cover the whole subject as minutely as he might wish.

On the whole, Keeler's "Modern Otology" is a praiseworthy contribution in this field and a textbook is desired both by the student and specialist.  
I. D. K.

**THE DIABETIC LIFE.** Its Control by Diet and Insulin. A Concise Practical Manual for Practitioners and Patients. By R. D. Lawrence, M.A., M.D., M.R.C.P. (London), Chemical Pathologist and Lecturer in Chemical Pathology, King's College Hospital. Fifth edition, with 14 illustrations. Philadelphia: P. Blakiston's Son & Co., Inc. 1930. Price \$2.50.

This 200 page discourse on diabetes is intended to serve as a manual for both doctor and patient. For use by the patient, it seems a trifle technical. But as a means of rapidly acquiring a working knowledge of diabetes, we can recommend it to the general practitioner particularly if he is awed by the bulk of larger works on the subject. Presuming that this book reflects the practice of the medical profession in England, it would appear that the English use diabetic diets of low carbohydrate but high fat content; for example, C. 70 G., and F. 210 G. a day.

In the United States under the tutelage of Joslin we are accustomed to prescribe rather more carbohydrate and less fat, say C. 100 G., F. 160 G. in 24 hours. Of course, these two diets are not exactly equal as regards the sum total of their calories. They illustrate proportions. Moreover, we do not think Joslin would approve, as part of the routine treatment of diabetic coma, to "give dr. ii (8 G) of sodium bicarbonate every two hours until the urine becomes alkaline," even though large and continuous doses of the alkali are cautioned against.

We mention these points not in the spirit of criticism but as an illustration of how the treatment of a disease may vary in different localities without apparently sacrificing any of its efficacy, for we know they treat diabetes in England quite as successfully as we do.  
F. N.

**A TEXTBOOK OF THE PRACTICE OF MEDICINE.** By Various Authors. Edited by Frederick W. Price, M.D., F.R.S. (Edin.), Consulting Physician to the Royal Hospital, etc. Third edition. Oxford University Press, American Branch, 35 West 32nd Street, New York City. 1929. Price \$11.50.

This is an octavo book of 1871 pages, printed in England. The thinness of the paper blurs the type and it is not pleasant reading on that account.

The book is a compendium of the practice of medicine. It includes some 75 pages on psychological medicine; some 60 odd pages on the nervous system; about 100 pages on the skin; and about 60 pages on neurology.

The very immensity of the fields makes it impossible for the authors to cover adequately their work. For that reason the reviewer believes that the book is better adapted for the student than for the practitioner,—or better, for one who is reviewing for an examination than for one who is looking up details.

American literature is fairly well represented. This is the more remarkable because the book is avowedly the product of the London school of medicine. Remembering how little from American sources would have appeared in such a book thirty

years ago, America is to be congratulated on the rise in prestige of American medicine. The reviewer admires the conciseness of the discussions which contrasts very sharply with the verbosity of many newer American books.  
G. H. H.

**DIAGNOSTIC METHODS AND INTERPRETATIONS IN INTERNAL MEDICINE.** By Samuel A. Loewenberg, M.D., F.A.C.P., Assistant Professor of Clinical Medicine, Jefferson Medical College, etc. With 547 illustrations, some in colors. Philadelphia: F. A. Davis Company. 1929.

The book aims to cover the field of diagnostics in internal medicine. It gives instructions on the various methods of examining the patient, descriptions of normal findings, enumeration of pathologic conditions with the normal and pathologic physical signs, and whenever possible the reasons for such signs. The signs and interpretations are discussed from the viewpoints of the medical student, the general practitioner, and the specialist.

This book is well conceived, well executed, and well illustrated. Many useful tables are included. It should be a valuable addition to any practitioner's library.  
R. L. H.

**THE RIGHT HONORABLE SIR THOMAS CLIFFORD ALLBUTT,** K.C.B., M.A., M.D., F.R.C.P., F.R.S., Hon. M.D., D.Sc., D.C.L., LL.D., Regius Professor of Physics in the University of Cambridge, etc. A Memoir by Sir Humphry Davy Rolleston, Bart., G.C.V.O., K.C.B., M.A., M.D., Hon. M.D., D.Sc., D.C.L., LL.D., Regius Professor of Physics in the University of Cambridge. New York: The Macmillan Company. 1929. Price \$6.00.

The author of this memoir is Sir Clifford Allbutt's successor as Regius professor of physics in the University of Cambridge. Sir Clifford died in 1925 after an unusually long and brilliant career of sixty-four years in medicine. The influence of Allbutt upon the practice of medicine was considerable but it seems to lack the charm and luster of Osler. Allbutt's system of medicine enjoyed a tremendous world circulation and the literary style of the author is superior to that of all contemporaries, even Osler. Allbutt is given credit for a power to stimulate thought. He gave us a small volume upon "Scientific Composition" that carried advice upon literary methods of perpetuating and preserving these thoughts.

Rolleston's work is a recital of the life of Allbutt year by year. Even the author admits that it is largely bibliographic. This is somewhat disappointing to Allbutt's old admirers because it makes the book rather dry and lexicographical. Of course, Allbutt led the life of the conservative English aristocratic physician surrounded by the limitations imposed by dignity and position. Hence, there was little of the spectacular or illuminating, nothing adventurous or startling, and shall we say—nothing interesting?

But there was something very fine and substantial to Allbutt. "Few approached him in literary style and the power to stimulate thought," and he was a persistent advocate of the need of a sound general education as a basis of medical training.

There is no doubt about this book being the simple annals of Sir Clifford Allbutt, a conservative English physician, written by his equally conservative English successor and friend.  
E. H. S.



THE INTERNATIONAL MEDICAL ANNUAL. A Year Book of Treatment and Practitioner's Index. By Various Contributors. Forty-eighth Year, 1930. New York: William Wood and Company. Price \$6.00.

This octavo volume was printed in England and the contributors are English, with two exceptions—Walter Campbell, of Toronto, who writes on diabetes, and Rene Fontaine, Strasbourg, who writes on blood vessel surgery. It contains 598 pages, 61 rather excellent insert plates and 54 illustrations.

To the theorist or bibliophile the book is of interest in showing what American contributions have won attention on the other side. Most of the quotations from the American literature are well chosen, but the reviewer cannot escape the impression that the editors have swallowed some of the American suggestions rather voraciously. But, in general, it will be a safe guide to the practitioner who wants to see what has been suggested on a given subject during the last year.

The material is arranged alphabetically and includes surgery, medicine, and midwifery. It is really encyclopediac in its scope. G. H. H.

TREATMENT IN GENERAL PRACTICE. By Harry Beckmann, M.D., Professor of Pharmacology at Marquette University, Milwaukee, Wisc. Philadelphia and London: W. B. Saunders Company. 1930. Price \$10.00.

The characteristics of this book are individuality, freedom of expression, and free quotations from the late American literature. The subjects are discussed as if by a small group of physicians, each telling his own ideas, theories and beliefs. In other words, there is a pleasing absence of pedantic ex cathedra statements.

In his preface, Dr. Beckman says: "Very humbly I recognize that the rather lengthy presentations of controversies that are to be found here and there in the book will give much offense to all save those who, like myself, have been even more disturbed by the indolent type of pedagogy that seeks sanctuary in the shameful words 'Upon this point we can say very little as the authorities are at present in disagreement.' Only as I have thought and taught through the years have I been able to write, a limitation which I suppose every author recognizes."

This plan of making long excerpts from original sources has added to the length of the book and will probably lead to a digestion and summarizing in subsequent editions. For, after all, what we want is the author's reaction to all of these therapeutic theories as they have been promulgated through the years, rather than what those proposals were. Thus, we gladly sit at the feet of a man who has practiced his quarter of a century and listen to his observations on the results obtained during those years. That is, a man who has been able to carry out MacKenzie's idea of waiting twenty years before describing and classifying a given case, is the man to whom others should listen. It is a pity that more of such men do not write books.

The author precedes his discussion of therapy in each disease described with a summary of the essential characteristics of the disease. This is of value in showing Professor Beckman's conception of the disease and serves to explain his therapy. As might be expected from a professor of pharmacology, these conceptions of disease are theoretical rather than clinical. For example, we find an absence of articles

on subjects which as clinicians we would expect to find in a volume of this size.

The reviewer believes this book will be of more use to the general practitioner than any he has seen within recent months. G. H. H.

THE DOCTOR IN COURT. By Edward Huntington Williams, M.D., Baltimore: The Williams & Wilkins Company. 1929.

If every doctor would read this book before appearing in court he would never wish to appear in court. But, unfortunately, a doctor has to appear in court when properly summoned whether he wishes to or not. And absurd as it may seem, whether he has ever been in court before or not, he is often called as an expert witness.

As a matter of fact a doctor stands just as good a chance in court before a fairly good trial lawyer as he would against Walter Hagen in a golf match if he had never played golf before. This is one of the points that this book tries to bring out. Another point is that one doesn't have to be a crook to perjure himself. In fact, it is practically impossible, owing to the technical devices that are allowed by the law, for an honest physician to avoid perjury despite his every effort.

On the other hand the author does admit that there are medical experts, particularly alienists, who are not altogether pure, and he notes that it is proverbial for juries to have little if any use for the species. This type of witness is despised by friends, enemies and neutrals and is howled at by the press. "Wherefore there remains only one explanation of why he will take the stand at all,—profit."

Our advice to all doctors who ever have been or who expect to be hailed into court is to carefully read this book. R. L. T.

VENEREAL DISEASE. Its Prevention, Symptoms and Treatment. By Hugh Wansey Bayly, M.C., Hon. Sec. Society for the Prevention of Venereal Disease, Late Surgeon R. N. (Temp.); Major R.A.-M.C., T.F., Pathologist to the London Lock Hospitals, etc. Fourth (American) edition. With three colored plates and 74 illustrations in the text. Philadelphia: F. A. Davis Company. 1930. Price \$3.50.

This small volume of 242 pages is dedicated to those officers and ex-officers of the medical service of the fighting forces of the English-speaking peoples who before, during, or since the Great War have realized, taught and proved the value of immediate self-disinfection as a method of prevention of venereal disease.

The first thirty pages of the book deal with the question of prevention and with the work of the (English) Society for the Prevention of Venereal Diseases, of which the author is the founder. The aims of the society are "to educate the adult male population regarding the value of medical prevention in venereal diseases and to alter the Venereal Disease Act so as to permit chemists to sell suitable disinfectants accompanied by instructions for use."

The remainder of the volume sets forth clearly, concisely and with distinction, the symptoms, pathology and treatment of venereal diseases according to the best English practice. The student, the hygienist, the general practitioner and the specialist as well will find much of value in its pages. It is neatly printed in clear legible type, on good paper and well bound in cloth. There are a number of illustrations, some in color, a good index and a well-chosen bibliography. It is a valuable little book and can be highly recommended. A. R.

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### IS THE MEDICAL PROFESSION DIS- CHARGING ITS FULL DUTY TO THE PUBLIC?\*

WILLIAM GERRY MORGAN, M.D.  
President, American Medical Association  
WASHINGTON, D. C.

During the past few years a great many of those who have discussed the cost and quality of medical service which the public is receiving, have placed the entire responsibility for such shortcomings as may exist entirely upon the shoulders of the doctors. Such criticisms have come quite as often from members of the profession as from lay writers. Almost invariably these criticisms have led up to the threat and prophecy that if the profession did not promptly mend its ways the doctors would soon find themselves blacking boots and sawing wood. I think we are all agreed that every question which is at all debatable has two sides, a consideration of both of which is necessary before sound deductions can be drawn. I thought it would be worth while to look into this question a bit and present the doctors' side of the argument.

Of the many delinquencies charged to the medical profession by lay writers and some physicians as well as a very few only are worthy of notice, because most of these criticisms are so unjust and so apparently without foundation that they make few converts among the laity. Criticism for criticism's sake is unfortunate; fair criticism leading to constructive measures should be welcomed by every fair-minded person.

The statement is being frequently made that a considerable proportion of the people of this country are deprived of medical service in time of illness. One recent writer expressed the belief that the reason for this lack of medical care was due to an insufficient number, and inequitable distribution of, doctors and the high fee which doctors charge for their services. It is an indisputable fact that of late

years the tendency has been for recent graduates in medicine to drift to the larger centers of population, which would seemingly leave the rural districts largely without access to physicians. However, as a partial offset to this congestion of medical talent in the cities is the rapid development in improvement in means of communication which has come about in the last fifteen or twenty years. With the advent of the telephone, the automobile and improved highways reaching to every corner of the United States, the people have more or less ready access to the physician even though they may live in more or less isolated and sparsely settled districts. The family living within from fifteen to forty miles of a doctor can in most instances receive his services in about the same time as formerly they would have been able to do had he lived but five miles away. In case of illness the telephone will bring the doctor to a bedside thirty miles away within an hour in case of emergency. Or, in many instances, the patient may be brought in an automobile to the doctor's office, or to the hospital, in the same length of time. The fees charged for the present day service over these long distances have not increased out of proportion to the increase in the earnings of such families.

In order to supplement my own observations relative to the dearth of physicians throughout the United States in general, I have recently consulted some of the leading practitioners throughout the South and Middle West. And in addition to these conferences I wrote a letter to Dr. Olin West, general manager of the American Medical Association, asking him to give me his general impression as to what extent the people in the rural districts were suffering from lack of medical care. Dr. West in his reply discussed this subject somewhat at length. The opening paragraph of his letter gives the gist of the results of his somewhat extended study of this phase of medical care. He said: "I have never been able to locate the places where it is impossible for any considerable number of persons, whether rich or poor, to secure fairly competent medical services, except in isolated spots far removed from centers

\* Read at the 73rd Annual Meeting of the Missouri State Medical Association, Hannibal, May 12-15, 1930.



of population and lanes of travel. This, however, is no new condition, but one which always has existed and always will exist until the whole country is fairly thickly populated . . . for the reason that physicians cannot maintain themselves in such territories. In so far as I have been able to find out in the study that I have given the matter, the people of the country generally are receiving better medical services than ever before." Doctor West went on to say that a number of times doctors have told him of being located in sparsely settled districts and were able to have good practices before the advent of good roads, the automobile and the telephone, but that with the advent of these improvements their former patients drove by their offices into towns and cities many miles distant, and that the doctors were compelled in self-defense to move into the towns and cities.

The people in the rural and sparsely settled districts of the country are receiving at the present time more comprehensive medical attention than they were even six or eight years ago. This improved condition is shown by comparing the results of the extensive studies which Doctor W. S. Rankin made in 1922 with that which obtains at the present time. The publication of such exhaustive reports as Rankin's, Haven Emerson's, and others, brought home to the profession and the public alike the vital necessity for ameliorating these deplorable conditions. That the profession and the public responded to a call for betterment of these conditions is shown by the recent observations of Doctor West and the men living in the Middle West and the South whom I have lately consulted and of whom I have already spoken.

If we now turn to a consideration of those living in small towns, small cities, and the larger metropolitan centers, there seems no apparent reason why any considerable proportion of them need go without the services of physicians.

To me it appears absurd to give as a reason for the public not receiving proper medical care that physicians do not advertise. There is no community, or exceedingly few, where a telephone directory is not accessible. Whomsoever needs the services of a physician has but to turn to it to make his choice. Lay writers frequently call attention to the difficulty which the public faces in the choice of physicians competent and worthy to meet the particular need at the moment. At the present time in the majority of communities there is no method by which the mass of people are able to select the competent and skilled and conscientious medical man from the great number who are classed in the various directories

under the common head of doctors. At the present time the safest course for those desiring medical service, who are not themselves acquainted with the medical men of their community, is to apply to the secretaries of the local medical schools and hospitals, for it is fair to assume that those physicians who are connected with the medical schools, or have won places on the staffs of the hospitals, have won such positions through a certain degree of professional ability. By what means a central bureau of information on medical matters could be established to furnish reliable information so as to act with impartial justice to all working in the medical field, is difficult to determine. It is possible that a bureau operating under the system of mercantile credit agencies, listing every person practicing the art of healing, might prove of practical assistance to the public in general. The difficulty would be to determine the personnel of such an agency who would be competent to grade the capabilities of the doctors. This, I fear, would form an insurmountable obstacle to the development of such a plan. However, I have faith to believe that some time in the near future a way will be found to give the public this much needed information.

It seems equally unjust to make the statement that any considerable number of persons are denied medical care because of the fee of the doctor. Few indeed are the physicians who when they receive calls for succor demand the fee in advance, or refuse to respond to calls because of the question of fee or the payment of it.

We can see a gradual steady improvement in medical facilities in rural districts throughout the country, by the establishment of community hospitals, open to all the people, and presided over by the physicians of the county or town in which they are situated. Such hospitals inevitably attract the younger physicians away from the congested centers by affording them those facilities for practice to which they have been accustomed during their period of training.

The establishment of hospitals and community clinics must be greatly augmented. I feel that it is the duty of the medical profession to develop a broad and uniform system for the rapid extension of this movement which is just in its infancy. In order to do this it is vitally necessary that the public cooperate whole-heartedly in enabling the profession to finance such institutions. The medical profession as compared with the other professions is relatively less able to invest the sums of money necessary to build and equip these hospitals and community clinics. Relatively few doctors at the end of a long and arduous life of daily

toil have been able to accumulate a competence which will enable them to retire from active work in comfort and security.

It is vastly better that these county hospitals and community clinics be financed in so far as possible, by the individual communities which they are to serve. By so doing the local public will have a vital interest in these institutions and will protect and perpetuate them in a manner which they are not likely to do if the funds for establishing and equipping them are derived from the great foundations or from sources entirely outside of the community. Herein lies the basic duty of the profession. That this initial action can originate within the profession itself is proven by the fact that we have in different parts of the United States instances of the successful accomplishment of this plan.

The medical profession is charged with lack of organization and it appears to be a just criticism founded on fact. The medical profession had not been alive to the lack of co-ordinated effort in the service of the public until it was brought to their attention and that of the public by economists who have for a number of years given thought to this particular part of the social problem. We doctors are inclined to resent lay criticism, and when such criticism is unjust and unfair and gives but half the truth of the situation, we have a right and indeed it is our duty to resent it. Nevertheless, where an important shortcoming of the profession is brought to light by any criticism voiced by those outside the profession, we should profit by it. No amount of acrimonious denial of disagreeable facts helps in the progress for better things. However, I feel that it is our duty to protect the public from being led to take erroneous and unsound views upon the service which physicians are rendering them. For this reason we should take the public into our confidence and frankly discuss articles and statements appearing in the press relative to the broad question of health problems, and to assume the responsibility for such evils as may be properly laid to our door.

A still more unwarranted statement which appears from time to time is that the medical man keeps his skill a closely guarded secret, and that he shies at preventive medicine because elimination of illness would cut down his income. To turn again to a consideration of the rural districts we have but to compare the hygienic conditions of the towns, of the villages, and the farms, with that which obtained but a decade or so ago, to refute it. This improvement in living conditions has been brought about by the earnest and persistent study, research and teaching of the medical pro-

fession. Time was and not so far distant either when doctors were largely occupied and especially in rural communities with the treatment of communicable diseases, such as typhoid, malaria, diphtheria, scarlet fever, and others. Such diseases have been largely eradicated by the crusade which the medical profession has waged against them in the field of preventive medicine.

It is undoubtedly true that we doctors fail to take advantage of the opportunities offered for daily teaching of those elements of preventive medicine which can be carried out by our patients as routine in their homes. We are guilty of the sin of omission in this regard partly through the stress and strain under which we habitually work, but more probably because we are not yet imbued with the vital importance of carrying on this crusade in a vigorous manner. To achieve the most comprehensive end-results in preventive medicine it is necessary for the laity to bear their just share of the responsibility for protecting themselves from preventable disaster, whether it be illness or other misfortune. The first step in arousing this sense of responsibility on the part of the public is education in the simple precepts of right living. This can be accomplished by the bedside doctor in his daily contacts, by lectures, by physicians, or others qualified by training, and through the pages of the newspapers and periodicals. And perhaps the greatest opportunity of all is offered by giving to our school children a carefully laid out course in the simpler precepts of hygiene.

Let us for a moment turn to a consideration of the quality of service which the great mass of people is receiving at the present time from the daily practitioners. It is an undebatable fact that the basis of effective treatment must rest upon a correct diagnosis. The type of treatment may vary with the individual experience of the physician. The study necessary to evolve a correct diagnosis must always be more or less extensive and demand, as the science of medicine has developed, something more than medical intuition and the employment of the unaided five senses. I hasten to add, however, that the latter day tendency to relegate to the background the development to the highest possible degree of the acuteness of the five senses is to be decried. Whereas laboratory studies are desirable and necessary, yet laboratory findings should be largely corroborative and corrective. Is it not true that the tendency to overemphasize the importance of the laboratory has led to a blunting of the bedside observation and examination. How often have I had occasion to recall the admonition of the greatest of all my teachers, John B. Deaver, "to grow an eye on the end of the index finger



of the right hand," and that no student who could not see with the finger tips would be worth the powder and shot to blow him up. Have we not latterly come to rely too much upon the laboratory for the making of diagnosis? Again I hasten to add that access to the laboratory has come to be a necessary part of the study of illness and is too often neglected by many who are so busily engaged in seeing a large number of patients that they have not time to give to each individual case the consideration which it merits.

Are not these two extremes responsible for some of the unsatisfactory and indifferent service which the public is receiving and for which the profession is being criticized at the present time, and from which the public is suffering? Is the diagnostic endeavor among the rank and file of the daily practitioners sufficiently comprehensive and exhaustive? I feel that this is a question which the profession should frankly ask itself. Is it fair to the individual to permit him to drift along from month to month being treated for some vague complaint, such as indigestion or myalgia, or colitis, or constipation, without making a sufficiently exhaustive study to discover the underlying cause of his symptom-complex. It appears to me that too often in the past we have laid ourselves liable to just this criticism. Up to within recent years the surgeon too often approached the clinic with the attitude of "let's go in and see," but with the advent of more accurate diagnostic methods this practice has largely disappeared. The internist has no longer an excuse for applying the "therapeutic test."

With hospitals, clinics and laboratories available there seems little excuse for basing treatment largely upon subjective symptoms alone, even in rural districts. The public are coming to be able to judge somewhat of the soundness of diagnosis and the comprehensiveness of treatment of disease. Heretofore the public accepted the doctor behind the sign as not only capable but willing to give skillful and appropriate medical service. With the more general dissemination of at least the rudiments of health problems, the public is coming into a position of being able to know what it should receive at the hands of the medical profession in the line of diagnosis and treatment, and is more and more insistent upon treatment based upon careful study. It is our sacred obligation to the public and to the traditions of our profession to see to it that we do our level best each day as it comes, by every individual who trusts himself to our care. If we do this conscientiously we will have little to fear either because of the question of the high cost of medical care or of the advent of state medicine.

The latter-day tendency of a large proportion of recent graduates from our medical schools to take up one or other of the specialties immediately upon graduation is creating a dearth of the old-time family physician. This tendency has been the subject of much discussion within the profession, and now is commanding the attention of lay writers. Some of these writers go to the extreme of contending that there is no just reason for the existence of any specialty in medicine. Such an assertion, on the face of it, shows an unsound and contracted view of this economic problem. Present day efficiency requires such infinite knowledge of detail in the professions, in industry and in commerce that it is impossible for any one person to be sufficiently versed in all the phases of any one line of endeavor, hence the evolution of the specialist. As I have said, this obtains in all professions and in business of every description,—there is no exception to this condition of affairs. Why then should the medical profession be called upon to take a backward step in the conduct of its affairs.

No physician however highly endowed in an intellectual way could acquire the knowledge and the proficiency to enable him to do justice in all of the fields of medical practice. Many of the great discoveries in medicine and surgery have been brought to light by those who have devoted years of thought and study to one particular branch or specialty of medicine. These discoveries have resulted in the prodigious progress which our profession has made during the last fifty years.

As a proof of this assertion one has only to remember the work of such great specialists as Lister, Pasteur, Koch, Baynham, Laveran, Vidal, Wassermann, Erlich, Welch, Walter, Reed, Einhorn, and many others too numerous to mention. Without the untiring devotion of these men to their chosen fields of activity the present day progress of medicine would have been impossible. Is it not fair to assume that we must look to those physicians who will devote their energies to limited fields of research for still greater development in the science and art of medicine in the future?

We all fully realize that a thoroughly equipped, highly scientific, yet clinically sound family physician is vitally necessary, and should form the bulwark in the daily practice of medicine. Indeed, it appears to me that we should develop yet another specialty, that of the family physician. To evolve such a practitioner he must go through a course of training infinitely more exhaustive and rigorous than is called for in preparation of any of the present day specialties. However, it is an ideal worth striving for. It is only fair to point out that

in all large cities and metropolitan centers as well as in many smaller communities there are physicians who measure up to the high standard which I have set for the specialty of family physician. I voice the hope that every community however small may be blessed with a sufficient number of family-physician-specialists to serve the needs of all of the people all of the time.

In all of the present day specialties there are both competent, highly skillful men and there are some who are not warranted in undertaking the work in their chosen field. However, it is fair to assume that there is no dearth of competent and skillful physicians in the various specialties everywhere at the present time. Hence, in advocating a larger percentage of young practitioners going into the field of family-physician-specialty we need have no anxiety of robbing Peter to pay Paul. The public, if my plan is followed out, will be better served, vastly better served in times of illness.

I will consider the cost of medical care but briefly, inasmuch as a committee composed of some of the foremost medical men together with men prominent in institutional work, as well as some of the leading economists of our day, are hard at work making a nation-wide survey of all of the phases which go to make up the cost of medical care at the present time. Their program is so comprehensive and so far-reaching that they have very properly set a five-year term for the completion of their work. It appears to me to be not only wise but necessary that the medical men in each community should undertake independent studies of the conditions affecting the sick who come under their care. In the District of Columbia such a study is already going forward. There are certain problems peculiar to each community which the local men must take into consideration if a constructive plan for the relief of such conditions as need correction is to be carried out. By so doing we shall all be in a better position to properly evaluate the findings of the committee and to adapt them to our local needs.

As I have already pointed out, the basis of effective treatment must rest upon a correct diagnosis. It will therefore be seen that the initial study may form the major part of the cost of the cure of disease in many cases. There can be no argument as to the basic necessity of starting any treatment from the result of the diagnostic endeavor. The development of the present day methods of arriving at a diagnosis of disease have been evolved through the single-minded purpose and desire on the part of medical men to render more efficient service to their patients. Up to this time the

stimulus which has brought about this advance in medical science has originated in the disinterested determination upon the part of the medical profession to acquire a more profound understanding of the human body. However, from this time onward the desire for increased knowledge will be greatly augmented by the demand of the public for ever increasing efficiency. In other words, the laity have come somewhat to recognize the difference between knowledge based upon profound study of the individual, and a more superficial method of treating disease, with which in the past they were satisfied.

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## ALLERGY AND IMMUNITY IN TUBERCULOSIS \*

HOWARD H. BELL, M.D.

ST. LOUIS

When the animal body becomes infected with bacillus tuberculosis its reactive powers soon become profoundly altered. This phenomenon was noted by Koch as early as 1891.<sup>1</sup> It soon followed, however, that von Pirquet observed the altered reaction in the skin of tuberculous animals to tuberculin which he designated as allergy.<sup>2</sup> The term allergy is at present used to denote the altered reaction shown to superinfection of a sort that is not shown to primary infection. It may also be shown to tuberculin, and possibly to some other related products.

We will first discuss allergy in the experimental animal. Primary infection with *B. tuberculosis* causes no appreciable inflammation at the site of inoculation nor immediate general illness. After a time the experimental animal dies from generalized tuberculosis. The response to the infection is prominently a delayed response. In primary infection, the tubercle bacilli show a predilection for lymphoid tissue, no matter how many bacilli enter the body.<sup>1</sup>

Following the primary infection the reaction becomes altered. Upon superinfection by inoculation there is an immediate and violent response to superinfection in proportion to the degree of allergy or altered reaction. There is the phenomenon of acute inflammation at the site of inoculation. In addition, there may be a more or less general reaction characterized by fever, alteration in total white blood cells as well as relative percentages of white blood cells, fall in blood pressure, and an aggravation of the primary tuberculous focus.

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Krause,<sup>3</sup> who believes that immunity and allergy to tubercle bacilli are inseparable, has summarized the difference between primary and superinfection as follows: (1) In the normal nonimmune guinea pig tubercle bacilli inoculated intracutaneously or subcutaneously are carried almost immediately (within one hour) from the portal of entry by the lymphatics. (2) Within three or four days they have made the circuit of the body. (3) In the immune (allergic) animals their transmission is greatly retarded. (4) They remain fixed or near the portal of entry for about seven days. (5) They do not reach the regional lymph nodes (superficial inguinal and axillary) until two weeks after the infection. (6) They do not become generalized through the body until three or four weeks after the infection.

Ten or fewer virulent bacilli will cause a normal guinea pig to die of tuberculosis. An immune (allergic) tuberculous animal will for months hold in check 10,000 times 10 bacilli, and more when introduced from without.<sup>4</sup> Krause and Willis believe, therefore, that specific tuberculo-immunity occurs through fixation of the germs that result from the operation of allergic reaction. The almost immediate inflammation hems the bacilli in. The immune state (that is, the allergic reaction) operates to retard the spread of the bacilli from the portal of entry rather than to inhibit completely their activity and multiplication.

The studies of Lurie<sup>5</sup> on the fate of tubercle bacilli in the organs of reinfected rabbits, using the bovine and human types, add considerable information to this subject. In following his work, it should be borne in mind that bovine type of tubercle bacilli is much more pathogenic for rabbits than the human type and causes widespread infection in rabbits. This fact has been used as a means of distinguishing the bovine from the human type. Lurie's conclusions follow:

1. In the presence of a certain amount of residual primary lesions, human or bovine tubercle bacilli of reinfection are destroyed in all the organs of the rabbits without any preliminary multiplication. This destruction is not quite complete; a few tubercle bacilli persist even two months after reinfection.

2. No microscopic tuberculous lesions due to the reinfection develop in these rabbits.

3. With the practical disappearance of the primary lesions and their enclosed organisms, restricted multiplication of the bovine bacillus of reinfection takes place but not the extensive growth observed in rabbits following the primary inoculation. In other words, some immunity persisted after the practical disappearance of the primary focus thus enabling the rabbits to combat doses of bovine bacilli which would have otherwise caused fulminating tuberculosis.

4. In these rabbits slight tuberculous lesions de-

velop as compared with the massive tuberculosis of primarily infected rabbits.

5. The human type of tubercle bacilli of reinfection does not multiply at all, nor does it cause any lesions, even when the lesions of primary infection have almost disappeared. It should be mentioned, however, that the human type of tubercle bacillus causes a mild form of tuberculosis in the untreated rabbit, in doses which are by no means as well tolerated when the bovine type is used.

6. Although the rabbit destroys efficiently considerable quantities of bovine type of tubercle bacilli of reinfection introduced from without, it may harbor innumerable human bacilli in the residual primary lesions of the lung or kidney.

In connection with the fixation of a foreign protein or antigen at the portal of inoculation in the immune animal, it is of interest to refer to the work of Opie.<sup>6</sup> He dealt with horse serum and egg white and found that these substances were fixed at the site of inoculation of immune animals. It was not possible subsequently to find them in the blood stream in recognizable amounts. The acute inflammation (Arthus phenomenon—that acute inflammatory reaction when a foreign protein is injected subcutaneously or intracutaneously in the immune animal which not infrequently leads to a slough) occurred at the site of inoculation and brought about the destruction of the foreign protein.

Following some of these preceding more fundamental observations on experimental animals it was revealed that the number of bacilli used in superinoculation and the interim between doses determined the course of the disease.<sup>7, 8, 9, 10, 11, 12, 4</sup>

It seems somewhat paradoxical but is an incontestable fact that repeated doses of virulent organisms build up resistance. Krause states that there is a dose of bacilli and interim for reinfection which will increase both allergy and immunity, and likewise one which will depress and (perhaps) destroy both. In other words, frequently repeated large doses of bacilli of reinfection depress both allergy and immunity while smaller doses at the proper interval may boost both allergy and the capacity of the animal to destroy tubercle bacilli (immunity). The animals die from tuberculosis ultimately but live longer than the controls. Allergy and immunity cannot be boosted by tuberculin.

Krause,<sup>13</sup> as early as 1916, enumerated some postulates in reference to allergy which have been repeated again and again by various investigators who in some instances have elaborated upon them. They are as follows: (1) Allergy is inaugurated with establishment of infection. (2) It increases as the disease progresses. (3) It varies with the extent and intensity of the disease. (4) It decreases with healing. It disappears with the enucleation of

the focus. (5) It is probably never lost entirely (except in the presence of intercurrent disease, pregnancy, etc.). (6) It is increased by reinfection. It is decreased during a period of tuberculin reaction.

Allergy declines as the infection subsides. In the experience of Willis,<sup>14</sup> after a period of two years it requires a large dose of tuberculin to elicit the tuberculin reaction. While allergy to tuberculin is very low, nevertheless the animal possesses much specific immunity to reinfection by virulent tubercle bacilli. Reinfection rapidly revises allergy. Atsatt<sup>15</sup> points out that allergy is renewed by minor reinfections so that a low allergy due to sclerosed focus may be boosted to a much higher level by a subsequent reinfection.

The immune state is at bottom conservative, but through and because of it all types of tissue changes to the point of caseation may occur. Reinfection may cause an acute spread of the former lesion; nevertheless, the animal may live longer than the control.<sup>16, 17</sup>

There are two main types of tissue reaction recognized in tuberculosis. The exudative type and the proliferative (fibroid) type. The exudative type of tuberculosis probably only occurs in the allergic. This form may be rapidly followed by excavation. Excavation of a focus may be precipitated by the injection of tuberculin or of living tubercle bacilli which are easily tolerated elsewhere in the body. In other words, they suffice to destroy the vitality of the already poisoned cells.<sup>18</sup> It is of interest to mention here that in the use of subcutaneous tuberculin for diagnostic purposes, one not infrequently elicits apical rales not heard before its use. This is no doubt allergic in nature. Pottenger<sup>19</sup> believes that both the exudative and the proliferative processes represent different phases of the allergic phenomenon. There would probably be no healing without allergy.<sup>20</sup> As has been pointed out, Krause invests tuberculo-immunity in the allergic reaction.

Zinsser and his collaborators<sup>21</sup> believe that the fundamental significance of bacterial allergy is an increased specific adjustment of the tissue cells for response to the stimulus of reinfection and consequently enhances the capacity for the rapid mobilization of a protective mechanism. On the other hand, Rich<sup>22</sup> warns against associating too intimately the terms allergy and immunity in tuberculosis. He failed to find any difference between the capacity of the cells and serum of normal animals and those of the immune animals to destroy the tubercle bacilli. His work would leave the problem of tuberculo-resistance as unsolved. He intimates that it may be possible that allergy and immunity may be independent phenomena

and that allergy may even be a detrimental factor in overcoming the infection.

In this connection it is of interest that Arthus<sup>23</sup> has been able to dissociate the phenomena of anaphylaxis and immunity in work on cobra venom. The venom of the cobra has the effect of curare. Treated animals become both anaphylactic and immune to cobra venom. By special experimentation he has shown that anaphylaxis plays no part in neutralizing the curarization effect of the venom.

Krause, Webb and others have stressed the distinction between tuberculo-allergy and anaphylaxis. There are many points of difference between tuberculo-allergy and that of anaphylaxis which have no doubt been given undue emphasis and significance. Tuberculo-allergy has never been passively transferred by serum transinoculations as in anaphylaxis; nevertheless, Caulfield<sup>24</sup> and his collaborators working on skin transplants showed that the skin from the allergic animal transferred to a normal animal remained allergic or hypersensitive to tuberculin for considerable time. It would seem that tuberculo-allergy is a property of the cells of the body and is not imparted to the serum of hypersensitive animals, as with anaphylaxis.

The hypersensitiveness from infection with the tubercle bacilli illustrated by the tuberculin reaction according to Opie<sup>25</sup> is manifested by an acute inflammatory reaction that has all the essential characters of anaphylactic inflammation. Whether tuberculo-allergy and anaphylaxis (arthus phenomenon) are similar or not, the fact remains that they are of similar origin, cause similar tissue reactions, and may lead similarly to necrosis. Excavation in the lung of a tuberculous human in effect bears semblance to a focal arthus phenomenon.

The clinical application of the preceding information has definite limitation; however, it does serve to explain in part at least the developments we find in patients.

We not infrequently find chronic pulmonary tuberculosis limited as far as we can determine to one lung. An acute spread occasionally occurs in the contralateral lung characterized by an acute exudation, which may rapidly be absorbed or rapidly be excavated leaving a cavity with a thin wall. It has been contended that under such circumstances sputum is mechanically disseminated in other parts of the lung through coughing. Associated with the spread to the contralateral lung there is a rise of temperature and pulse, gastric disturbances, increased sputum, and associated general aches and pain. After excavation has taken place the condition subsides into the previous chronic course. This acute spread is attributed to



allergic phenomenon, presumably caused by tuberculo-protein furnished by the patient's own infection.

It was previously stated that Rich considered the possibility of allergy being a phenomenon independent of immunity. In connection with this trend of thought he pointed out that allergy may possibly be detrimental and indeed destructive. While acute excavation would seem to be a thoroughly destructive process, it must be borne in mind, however, that a large quantity of very toxic material is gotten rid of by that process. Still the question may be raised whether this occurrence based on allergy be beneficial or wholly detrimental to the recovery of the patient.

There is a form of hilum tuberculosis in children associated with recurrent spread into the parenchyma of the lung, which tends to undergo resolution after several weeks. Recurrent hilum tuberculosis is identical with the so-called "epituberculosis" of Eliasberg and Neuland, which runs a mild course and has a negative sputum. Recurrent hilum tuberculosis is undoubtedly based upon an allergic phenomenon.

In tuberculo-gelatinous pneumonia it is occasionally difficult to demonstrate B. tuberculosis in the process even by guinea pig inoculation. Continued search will of course show acid-fast organisms but the reaction is out of proportion to the amount of tuberculo-protein and no doubt allergic in nature.

I think that we all have seen dense X-ray shadows in the lungs of tuberculous patients clear up in a remarkably short time. These shadows are no doubt attributable to acute inflammatory exudate rather than to tubercle formation, which obviously would disappear very slowly. This is further borne out by the experiments of Lurie on rabbits already referred to.

The Negro almost always dies from the exudative type of lesion and rarely shows the chronic fibroid type of tuberculosis. It has been stated that only the immune can die from chronic fibroid phthisis. The Negro, Indian or Eskimo races become allergic, indeed very allergic, but show very little immunity when compared with that of the Caucasian race. On the other hand, with chronic fibroid phthisis in the white race there may be very little allergy yet considerable immunity.

A primary infection does contribute to the defensive mechanism of the patient against superinfection which is the basis of Calmette's work on active immunization in the new-born.

#### SUMMARY

1. When the animal body becomes primarily infected with the tubercle bacilli its reactive

powers soon become profoundly altered. This was first noted by Koch and subsequently designated by von Pirquet as allergy.

2. The distinction between tuberculo-allergy and tuberculo-immunity has not been fully clarified.

3. It is not proved that allergy as we understand it in tuberculosis is essential to immunity.

4. The immune animal is the tuberculous animal.

5. In superinfection, the size of dose and interim between doses modify the course of the disease. Both allergy and immunity may be increased or decreased by proper size of dose at a particular interim.

6. In chronic fibroid phthisis it would seem that the resistance is not in proportion to allergy.

7. The aboriginal races are allergic and yet show very little immunity or resistance.

8. At present we must be conservative in interpreting physical reaction as allergy in terms of immunity or resistance to tuberculosis.

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#### DISCUSSION

DR. EDWIN J. SCHISLER, St. Louis: The paper presented by Dr. Bell has brought before you an interesting study and is a step forward from a diagnostic standpoint. There is no question about the importance of biological research for diagnostic purposes, for we see cases with very little cough and no tubercle bacilli, no gross lesions in chest, but of low resistance. Therefore, work of this kind, biological it is true, is a step forward and will help us clinically. There are cases with fibrotic changes and positive history for years, with cavities, a positive sputum, and no particular loss of weight. These cases develop a bronchial cold, a

tuberculous pneumonitis, or other infection, and being of low resistance the results are usually grave. This is probably where allergy plays an important part and increases the resistance of the patient for some unknown reason by acquired immunity associated with anaphylaxis which research of this kind will finally explain.

The question of treatment of the myocardial changes in these patients is of utmost importance. The myocardium is a paramount factor therefore stimulation is indicated and I know of none better than digitalis to increase the resistance by stimulating the capillary circulation and tone up the lymphatic system.

Rest, diet or forced feeding seemingly are the recent methods of treatment, some phthisiologists claiming they give no medication. Give them nuxvomica as a therapeutic support and see the results. Physicians who claim they need no therapeutics are playing into the hands of cultists. It is being said that doctors do not use medicine like they used to. Well, probably we are more scientific now, but some of us still have our favorite drugs which give us good results, therefore, I hope you will not forget your therapeutics in the treatment of disease.

DR. SAM H. SNIDER, Kansas City: I would like to have heard Dr. Bell talk an hour about immunity and allergy and their relation to each other. We do not know the relation and we cannot prove it. We cannot prove there is necessarily any relation between them. So if you get a strongly positive tuberculin test in a little child do not assume he has an overwhelming infection, and do not assume that he is overcoming the infection that he has. Neither may be correct. A strongly positive tuberculin reaction may indicate a serious condition, while a milder reaction may indicate only a slight or negligible condition, or the converse may be true. The strongest tuberculin test I have ever seen was in a boy whose mother had general tuberculosis with tubercle bacilli in the sputum. The boy was the healthiest specimen I have ever seen, no enlarged glands, no demonstrable evidence of tuberculosis, and yet he had a positive tuberculin reaction when the skin was tested by a von Pirquet test.

We generally use the Mantoux test, i. e., inject 1-100,000 gm. of old tuberculin intracutaneously. We read the reaction at the end of two days and grade the reaction, 4 plus if there is sloughing; 3 plus for marked reaction without sloughing, and 2 plus for slight reaction. We regard any reaction in a child as evidence that the child is tuberculous. We do not know how long the tuberculin reaction persists after the infection is overcome by the individual. We think there is some relation between allergy and immunity.

I would like to have heard Dr. Bell talk about tissue reaction. I believe the reaction to tuberculin is not a reaction to the serums in the fluids of the body but reaction to fixed cells. Caulfield found transplanting tissue rendered it sensitive to tuberculin, while the animal itself into which the transplant was made did not become tuberculin sensitive, showing that the allergy is fixed in the fixed tissue cells. It is probable that immunity to tuberculosis is not a serum reaction but a fixed cell reaction.

I would like to have heard the Doctor talk on Calmette's B. C. G. I think probably there is something in that. I believe a large proportion of our acute pneumonias are simply allergic reactions based on slight infection.

DR. HOWARD H. BELL, in closing: In connection

with the subcutaneous use of tuberculin for diagnosis in obscure cases one not infrequently hears apical rales where none were before; these, however, soon disappear. This transient apical reaction elicited by the administration of tuberculin is regarded as allergic in nature.

Patients with chronic pulmonary tuberculosis running a mild course occasionally get an acute spread into uninvolved lung tissue associated with a terrific reaction, i. e., high fever, marked toxicity, rapid pulse, and so on. The center of the newly involved lung tissue may undergo necrosis and be discharged leaving cavity, or it may undergo rapid resolution. In either instance, under these circumstances, the symptoms are likely to subside soon and the patient continue in a course similar to the one observed before the acute spread had occurred. This is identified as an allergic type of spread and apparently out of proportion to the amount of tuberculo-protein present. This spread, which may be associated with destruction of lung tissue, certainly seems like a devastating process rather than an essential factor in immunity.

### THE EPILEPSIES \*

G. WILSE ROBINSON, JR., M.D.

KANSAS CITY, MO.

Historically, the "falling sickness" is probably the first described neurological entity. Hippocrates gave us our first description and, in a treatise on epilepsy, made the following statement: "But whoever is acquainted with such a change in men and can render a man humid and dry, hot and cold, by regimen, could also cure this disease, without minding purifications, spells and all other illiberal practices of a like kind." Lennox and Cobb, in their recent monograph on the subject, believe that we have only now traveled far enough to catch up with the Father of Medicine and, while paralleling his thought, paraphrase his words as follows: "Whoever is acquainted with physiology and can render a man acidotic, dehydrated and fully oxygenated, could also repress this disease, without minding purification of narcissistic personalities, ritualistic, empirical diets and all other illiberal practices of a like kind." This statement expresses completely our newest ideas of the treatment of epilepsy, dehydration and acidosis.

The exact interrelationship between these concepts has not as yet been determined. Whether acidosis or dehydration is the main factor or whether they both play a major part is the subject of much research at the present time. I feel that dehydration is the more important and that ketosis, which is the goal of the high fat diet, is simply a contributing factor to the spinal fluid changes resulting from fluid restriction. This belief is based upon the research work of Fay, Pendergast and

\* Read before, the Jasper County Medical Society, Joplin, January 7, 1930.



Winkelman, of Philadelphia, members of the McCarty Foundation for the Study of Epilepsy.

Let us consider the normal anatomy and physiology of the brain and its coverings the meninges and the cranium. The cranium is a closed, bony box, having no expansile qualities, with many openings, but only one of them normally patent in life—the foramen magnum. All the other openings are blocked off by the membranous portions of the cranium, the dura, so that only nerves, blood vessels and lymphatics may pass through, although there is probably a small amount of seepage of the spinal fluid along the nerve roots, estimated to be about ten per cent.

The foramen magnum opens into the spinal canal,—a long, closed tube, having many nerve openings similar to the cranial openings to allow for the exit and entrance of the spinal nerves. From this we can see that the important structures to be considered in this paper lie completely inclosed in a solid box, which cannot react to outside pressure without fracture, nor can it expand from internal pressure after the fontanels and sutures become closed.

Within this bony covering lie the brain and the spinal cord, the pia and the arachnoid, which are derived from the same structures embryologically, and the nerve roots. We can dismiss the nerve roots, the spinal cord, the hind brain and the basal ganglia, for the convulsions that may occasionally arise from these areas are usually focal and do not come within the scope of this paper. The cortex of the fore-brain, or telencephalon, is probably the beginning point of all types of nonfocal convulsions, such as epileptic, toxic, terminal, etc., as well as certain focal convulsions arising from irritation by tumors, or from meningitis.

The cortex is in intimate contact with the pia, the innermost membrane. Over the pia lies the arachnoid. These two membranes and the numerous fine trabeculae connecting them form the outer fluid pathway (termed the sub-arachnoid spaces) of the cerebrospinal fluid. These spaces hold the cerebrospinal fluid in its passage from the choroid plexus of the ventricles to the pacchionian bodies.

The cerebrospinal fluid has three functions: First, and most important, it acts as a liquid cushion to the soft brain, protecting it from external trauma; second, it has a slight nutritive function; third, it probably acts as the media for carrying off the excretory products of the brain. About ninety per cent of fluid arises from the choroid plexus and ten per cent from the substance of the brain. Its chief course of flow is from the ventricles outward. Most of

it arises in the lateral ventricle, passes to the third ventricle, through the aqueduct to the fourth ventricle, and from there out through three separate openings into the cisterna magna; from that point the flow is to the cisterna pontis, to the cisterna chiasmatis, and from there to the subarachnoid spaces over the cortex. Normally, this flow is over the frontal and anterior parietal lobes and not over the occipital. A small amount of the fluid passes up between the lobes along the falx cerebri. The fluid reaches the vertex and is filtered out through the six pacchionian bodies back into the venous sinuses. These pacchionian bodies develop by two stages.

Embryonic cell rests become arachnoid villi, which are scattered over the cortex, chiefly along the sinuses. These arachnoid villi act as filters during the early years of life, and about the time of puberty some of them begin to coalesce to form the adult pacchionians, others atrophy and disappear, and some of the filtering space is lost. This is an important fact which will come up later in my discussion.

With this background of a closed cavity and a constant flow of fluid, we can see that any condition which causes a block to this flow of fluid can have only one result—an increase in the amount of fluid lying in these spaces, an increase of intracranial pressure, with a dilatation of the fluid cavity behind the block; that is, a pineal tumor blocking the aqueduct produces a dilatation of the first three ventricles; a tumor of the cerebellum dilates the fourth ventricle and all behind it. A tumor of the chiasmatic region, if large enough, will dilate all the basal cisterns and the ventricular system, while disease of the pacchionian bodies will dilate the entire fluid system.

Now let us consider what causes a patient to have convulsions. Gowers, early in his study of this condition, realized that there were many types of epilepsy alone and that the convulsions were only a symptom. He used the phrase "the epilepsies" to cover all these types, and I have borrowed his term as the title of my paper.

We have long been aware that focal lesions in the brain will cause convulsions, either focal, that is Jacksonian, or general. These lesions may be tumors or other space-taking lesions, or may be vascular, infectious, etc. We have all seen convulsions in meningitis and with apoplexy.

There is the other great group of etiological factors in convulsions, the toxic. This group includes uremia, diabetic coma, anoxemia, external poisons, and infections with a general severe toxemia. These conditions produce generalized tonic and clonic spasms, from di-

rect or indirect action of the toxins on the nerve cells. Because of this, epilepsy has been studied for many years as a toxic disease and many forms of treatment have been devised based on this theory. The colon has been removed; the tonsils and teeth taken out; bile salts given; and other detoxifying agents employed, all to no avail. With every new type of treatment, there has been some apparent improvement because rest in bed and nursing always improve the epileptic.

Recently, a new attack has been made on this condition with results of a more lasting nature. The entire nervous system has been studied pathologically by Winkelman and some rather constant lesions were studied while the findings of Lind, Spielmeier and others were proved to be constant. The lesions found most frequently were thickening of the arachnoid, dilated ventricles, hypergliosis of the brain, and wasting of the gyri. These conditions do not occur alone in epilepsy; they are found in any condition in which there is an increase of fluid over the brain or an increase of pressure, general or focal. We find these changes in meningitis, long standing paresis, and space-taking lesions. As mentioned, any condition blocking the flow of fluid causes increase of both fluid and pressure and as a result produces these changes in the brain.

These correlations seemed significant; a search was made for the block, and the pachionians were examined. In every case of epilepsy the pachionian bodies were found to be sclerotic and atrophied, and in many cases almost nonexistent. Naturally, as would occur in every other organ of the body, their function was impaired. Their function is to filter off the fluid. When the fluid is not filtered off it must be held in the cranial cavity which causes the pathological, physiological, and the gross and microscopic pathological changes mentioned above. This gives us a sequence of events as follows: Pathological pachionians, back pressure of fluid, increase of amount and pressure of fluid, pressure on the brain, dilatation of fluid cavities, convulsions and pathological changes in the brain.

Two questions might rightly be raised at this time. First, how can convulsions be produced by this phenomenon; second, is there any evidence from the living to substantiate this. The second is easily answered. We have three sources, (1) operation and observation of the brain of the epileptic, (2) the encephalogram, (3) experimental evidence.

It has been shown many times that the arachnoid of the epileptic, when viewed at operation, has a glossy appearance and seems to be distended with an excess of fluid. The

arachnoid always seems edematous and opalescent. These conditions do not occur in the normal subject and can only be due to an increase in fluid content of the brain and membranes. There is also evidence that operation and drainage of the fluid spaces has a palliative effect upon the convulsions and may stop them altogether for a while.

Experimentally, it has been reported that excess fluid in the body which would cause an excess in the brain, will produce convulsions in dogs and would also lower the resistance of the dogs to chemicals that cause convulsions normally. For instance, absinth causes convulsions in dogs when taken in the proper doses, and when fluid has been forced on these dogs a smaller amount of absinth will produce convulsions. It has also been shown that a layer of vaseline between the skull and the dura will produce convulsions.

As to the first question, we have two things to consider; one a fact, the other a theory. We may first consider the fact, viz., that any condition which produces an increase in pressure will produce convulsions. Brain tumors produce convulsions,—sometimes focal, at other times general. This phenomenon can only be due to increase of pressure on the cortex of the cerebrum. Meningitis will produce convulsions and, while there may be some toxic element in this condition, the increase of pressure found in all cases of meningitis probably is the major element. We have convulsions in paresis and also increased pressure in this condition. But how does increased pressure cause the convulsions? Fay believes that with the pressure we have compression of the brain and dilatation of the spaces over the cortex. With this dilatation there is tension upon the fine trabeculae that connect the two membranes. This, in turn, produces a tension on the cortex underlying the pia. Now, some factor, such as a slight increase in fluid, increases this tension and throws the whole system off balance, with the result that there is a marked increase of irritation to the cortex and a convulsion results. There is also the possibility that pressure itself may have a direct action on the cortical ganglion cell and produce convulsions.

Let us now summarize:

1. A closed bony box.
2. Inclosed brain and membranes containing fluid, with a continuous flow and constant pressure.
3. A normal balance and no convulsions.
4. A disease of the pachionians and decrease of function.
5. Interruption of continuous flow and increase of constant pressure.



6. Increase of pressure on the brain and tension on the membranes.

7. Some factor destroys balance and convulsions begin.

8. Long standing increase of pressure producing brain changes and mental deterioration.

Our next question is, what may cause the disease of the pacchionians? At the time of birth many children suffer minute subarachnoid hemorrhages. This blood, of course, passes into subarachnoid spaces, and from there to the arachnoid villi. Blood cells will not pass through the villi, but are held there. Blood cells anywhere in the body undergo rather characteristic changes which lead to a fibrosis. This fibrosis naturally includes part of the surrounding tissue and there is, as a result, a loss of filtering area of the structures. This may be small or great, depending on the amount of hemorrhage. As life progresses, certain changes take place in the arachnoid villi. First, at about puberty, they change into the pacchionian bodies. This decreases the filtering area and may be the factor that throws the system out of balance and is probably the reason why so many cases of epilepsy begin at that period in life.

Winkelman has shown that as the individual grows older, pathological changes may occur in the pacchionians that will decrease the filtering space, and this may disrupt the balance. These changes are similar to those that occur in other secretory and filtering organs of the body. Primary fibrosis and sclerosis, acute infections followed by chronic inflammations, various degenerations, etc., all may occur and all cause a decrease of possible filtering space. Any of these conditions occurring in an already diseased or even in a normal pacchionian may disrupt the whole system and produce the fluid imbalance that causes convulsions.

With this background, Fay devised the plan of restricting fluid intake thereby decreasing the amount of cerebrospinal fluid and so decreasing the pressure of the fluid. This should, if our theory is correct, stop the convulsions. He reported a series of seventeen cases; six of these did not cooperate with him and six had not been studied long enough to warrant a report. The other five were made convulsion-free from grand mal attacks, but one continued to have his petit mal attacks regardless of how little fluid the patient took (240 c.c.). He also found that fluid limitation did not help two other types of epilepsy, the posttraumatic and the fluid seepage. In this last type there is a seepage of fluid through the dura with collection between it and the bone. This type can only be remedied by operation.

The differential diagnosis of the epilepsies is

not hard. There are two great groups, (1) those that give changes in the body that can be ascertained by means we were acquainted with before encephalography was discovered, and (2) the types that give no signs other than those found in the encephalogram. I will not discuss the first group as they have been mentioned before, namely, toxic conditions, brain tumor, meningitis, paresis and similar conditions.

In the second group we have three types: (1) the seepage which on encephalography shows a thickening of outer covering over what is present in the straight X-ray of the skull. This is due to the fact that the air is held away from the bone by the fluid under the dura which does not drain off with the other fluid; (2) the posttraumatic, which gives us our most startling changes. The most constant change is an arachnoiditis with blocking of fluid spaces so that no fluid appears over the cortex which was injured. In addition, there may be gross distortion of the ventricles, irregular areas of atrophy and marked dilatation of some fluid spaces normally found; (3) in the third or pacchionian groups we find a gradation of events, depending on the duration and severity of the condition. Early, there may be no changes; later we find a fading-out of the frontal fluid spaces and an increase of the occipital. Following this, atrophy of the brain may develop which may be cortical, as shown by increase of air around the pacchionians; subcortical, as shown by increase of the size of the ventricles, or general, as shown by both the above findings being found in the same case. Then later we will find atrophy of the entire central nervous system, the development of jaune plaques and other gross brain changes found in severe, long standing epilepsy.

My own series of cases is likewise too small to warrant many conclusions. I have done encephalograms on thirteen cases. Four were not satisfactory from the X-ray standpoint and are not included in this report. Of the nine reported, two were posttraumatic, five were pacchionian, one was a paretic and one was an arteriosclerotic.

The technic of encephalography while not difficult requires a special knowledge and certain precautions. The following points should be considered: If a chair is used, a puncture should be done the day before and if the pressure is above 20 mm. careful drainage should be done until the pressure is 10 mm. No work of this kind should ever be attempted without a manometer being constantly in use. If no chair is used but the patient is in the reclining position at the beginning and then placed in the upright position after the needles are inserted,

this precaution need not be taken. A double spinal puncture is then done between the third and fourth and the fourth and fifth lumbar vertebrae. The manometer is attached to the upper needle and fluid is allowed to run out of the lower needle. After 10 c.c. have run out, 10 c.c. of air are injected; this is continued until all is removed. There are only two points of importance here: the pressure must be kept constant throughout, and the head must be properly rotated from time to time to get complete emptying of the ventricular system.

I use a chair, similar to the Fay-Gardner chair but improved upon to add to the comfort of the patient. The reactions at times are severe but, except for an old man who died of pneumonia, I have had no fatalities. Complete recovery is usual in from two to seven days, depending on the pathology and resistance of the patient. Table 1 gives the diagnosis and type of reaction to the operation.

pressure to be from 0 to 8 mm. of mercury, so in our series all the cases had a top normal to increased spinal fluid pressure. However, in all the cases there was not a very great increase in amount of fluid, except in cases 3, 4, and 5. Case 3 had a pronounced cortical and subcortical atrophy, so that explains the increase. Case 6 was not properly drained and likewise should not be considered. In the other five cases the amount of fluid was top normal but was not increased to the amount to be expected if the increases of pressure were due to increase of fluid alone. Case 4 bears this out, with a pressure of 16 mm. and 250 c.c. of fluid. Here the increase is probably entirely due to increase of fluid and, as we can see, the increase in both is in proportion. Our normal amount of fluid is usually from 100 to 150 c.c. These two facts seem to indicate that there must be some block to the continuous flow of fluid.

TABLE 1

Case	Diagnosis	Spinal Puncture	Fluid	Reaction
1.	Traumatic Epilepsy	12 mm. Hg.	160 c.c.	Moderate
2.	Traumatic Epilepsy	14 mm. Hg.	160 c.c.	Severe
3.	Pacchionian Epilepsy	12 mm. Hg.	230 c.c.	Moderate
4.	Paresis	16 mm. Hg.	250 c.c.	Mild
5.	Arterial Sclerosis	12 mm. Hg.	250 c.c.	Died of Pneumonia
6.	Pacchionian Epilepsy	28 mm. Hg.	80 cc. +	Mild
7.	Pacchionian Epilepsy	10 mm. Hg.	140 c.c.	Severe
8.	Pacchionian Epilepsy	12 mm. Hg.	160 c.c.	Mild
9.	Pacchionian Epilepsy	12 mm. Hg.	150 c.c.	Moderate

Cases 4 and 5 need not be considered any longer, as they are not part of this report. Of the remaining cases, the spinal fluid pressure and amount of fluid are significant. As

Table 2 gives a short summary of individual histories and shows the frequency before encephalography was done and the medication that was employed. Luminal, as you see, is the

TABLE 2

Case	Age	Diagnosis	Onset	Frequency	Medication
1.	34	Traumatic Epilepsy	3	4 per Month	Luminal and Bromides
2.	42	Traumatic Epilepsy	42	1 per Month	None
3.	45	Pacchionian Epilepsy	8	4 per Week	Luminal
6.	8	Pacchionian Epilepsy	3	1-2 per Day	Luminal
7.	33	Pacchionian Epilepsy	29 (?)	1-2 per Month	Luminal and Bromides
8.	39	Pacchionian Epilepsy	35	2-3 per Week	Luminal
9.	37	Pacchionian Epilepsy	35 (?)	2-3 per Week	Luminal

you can see, the spinal pressure in every case is 10 mm. or higher in the reclining position. Case 6 was anesthetized so the pressure is not significant. We usually consider the normal

major component. I cannot at this time discuss luminal but can only say I am opposed to its use except as a last resort.

Table 3 shows the effects of encephalography

TABLE 3

Case	Immediate Improvement	Convulsions Under Fluid Limitation	Subjective Improvement
1.	Good. 2 Months Free	No Improvement	Good
2.	Good. 2 Months Free	No Cooperation	
3.	Good. 3 Weeks + Free	Not Followed	
6.	Good. 2 Weeks + Free	Convulsion-Free for 2 Months	Good
7.	None	Not Followed Long Enough	
8.	Good. 4 Weeks Free	Convulsion-Free	Good
9.	Good. 2 Weeks Free	Convulsion-Free for 3 Months	Good



and improvement under fluid limitation. I cannot conclude anything from so small a series, but it would seem to suggest that encephalography does have some immediate therapeutic value and that fluid limitation in the pacchionian cases does help these cases both subjectively and in direct relation to convulsions. Although I can draw no conclusions from so small a series of cases I can say that, from the literature and from my results, we seem to be at last moving in the right direction toward conquering the oldest of diseases.

Discussion of Table 3: Case 1 was so badly diseased with a combination of posttraumatic conditions, plus pacchionian disease, and of such poor economic circumstance, that nothing could be done.

Case 6, at the end of two months, returned to a very poor home situation and though followed we were not sure of complete cooperation.

Case 7 has attacks so infrequently that no conclusions could be drawn.

Case 9, after three months, failed to cooperate.

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## ACUTE LYMPHATIC LEUKEMIA

### REPORT OF TWO CASES \*

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Our first knowledge of leukemia dates from 1845 when Virchow,<sup>1</sup> and independently of him Hughes Bennett,<sup>2</sup> described the peculiar white appearance of the blood at autopsy, the massive enlargement of the spleen and the presence of exceedingly large numbers of leukocytes in the blood. The former called the disease "leukemia" and the latter "leukocythemia." Both failed to distinguish any qualitative change in the blood cells from those of sepsis.

Virchow<sup>3</sup> later drew attention to the type of leukemia in which the lymph glands were principally affected while the spleen was relatively unaffected. He then made a distinction between the "splenic" and "lymphatic" leukemia.

Neumann<sup>4</sup> made a notable contribution to our knowledge when he discovered changes in the bone marrow in leukemia, and proposed a third type, viz., "myelogenous" leukemia.

Because of the varying degrees in which the glands, spleen and the bone marrow were involved, often in contradictory manner, in cases apparently alike clinically, there was much difficulty in properly classifying the types of

leukemia. An arbitrary figure of 50,000 white blood cells was taken as the dividing line between leukemia and leukocytosis.

Our present conception of the disease sweeps away all such arbitrary classifications or divisions made on clinical lines or by numerical differences in the blood counts, and lays emphasis on the type of cell encountered. This is due to Ehrlich<sup>5</sup> whose differential staining of leukocytes enabled him to classify the cells as granular and nongranular forms, thus making it possible to diagnose the varieties of the disease by the type of cell encountered instead of on a clinical basis which depended upon the organ principally affected. This is the key-stone of the pathology of leukemia.

Ehrlich enabled us to distinguish two great groups of leukemia, (a) myelogenous leukemia with hyperplasia of the myeloid cells of the bone marrow, granulocytes, and (b) lymphatic leukemia with increase of the lymphocytic or nongranular cells. The spleen was omitted as a factor, thus simplifying the classification.

It was found that the splenic form showed bone marrow changes with hyperplasia of the myeloid elements and was therefore termed myelogenous or splenomyelogenous leukemia.

It was further shown that the lymphatic type might eventually also show a characteristic lymphoid proliferation in the bone marrow. Thereafter, Ehrlich made the division solely on whether the predominating cells were myeloid (granular) or lymphoid (nongranular). He disregards the size of the organs. This is the basis upon which is founded the dualistic origin of blood cells.

In succeeding years a large number of cases of leukemia were found which could not be clearly classified as purely myelogenous or lymphatic because granular and nongranular cells appeared together in the blood, or a known myelogenous leukemia just before death was shown to have a large percentage of nongranular cells. These cases were classed as atypical leukemia. Pappenheim seeks to explain these cases on the theory that both lymphoid and myeloid cells come from a single undifferentiated mother cell.

Naegeli,<sup>6</sup> in 1900, advanced the view that the prestige of the myelocytes (the myeloblasts), although closely resembling lymphocytes, are actually different morphologically and do not originate from lymphoid tissue but from myeloid tissue. These are the nongranular cells which sometimes appear in myelogenous leukemia causing confusion and the diagnosis of mixed leukemia. That these are myeloid cells and not lymphocytes can be proved by the oxydase test which brings out the granules of

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the premyelocytic cells. This again favors the dual origin of the white cells.

There are various conditions characterized by all degrees of changes in the blood and blood-forming organs, the bone marrow, lymphatic nodes, the spleen, and, in certain instances, the tissues generally. Some of these conditions have a fairly definite, even characteristic, clinical picture. Others are atypical and variable.

The general conception of leukemia is that it is a disease of the blood-forming tissues that produce leukocytes and manifests itself by a marked hyperplasia of these tissues. When fully developed in its classical form it is characterized clinically by a remarkable increase in the number of white cells in the blood, and by varying grades of splenic and glandular enlargement. Many of the white corpuscles of leukemic blood vary from the normal leukocyte and are considered pathological, unripe cells that have gained access to the blood before becoming mature. It is not the increased number of white blood cells but their immaturity which distinguishes leukemia from leukocytosis.

#### ETIOLOGY OF LEUKEMIA

The cause of leukemia is unknown. Certain micro-organisms have been described as the causal agent. Staphylococci, streptococci and various other bacteria have been found in the secretions and blood of leukemic patients.

Schmieser<sup>7</sup> was able to transmit the disease in fowl to the fifth generation from one in which the disease occurred spontaneously and which was not related to any fowl used by previous investigators. The method of transmission was by intravenous and intraperitoneal injection of organ emulsion. He was unable to inoculate monkeys with leukemic material from human beings.

Auer<sup>8</sup> in 1906 reported among other findings peculiar rod-shaped bodies in the cytoplasm of the large lymphocytes, both in unstained and stained specimens. His observation was corroborated by Pappenheim, Ottenberg and others. Auer was inclined tentatively to attribute some etiological relationship to these structures.

Although the acute leukemias have most of the earmarks of an infective process, proof is inconclusive. Heredity, race, sex, trauma, mental and physical states, are claimed by some to be factors. With the exception of the fact that acute leukemias generally occur at an earlier age than do the chronic leukemias, no conclusive evidence exists as to their influence.

#### REPORT OF CASES

Case 1. M. V., white woman, aged 27, married, American, entered City Hospital, Jan. 26, 1930, 12:20 p. m. Temperature 98.4, pulse 104.

*Onset and Course.*—Complained of pain along left lower chest and costal margin, aggravated by deep respiration. Pain was very sharp two days before entering hospital; a private physician had diagnosed pleurisy and had strapped her chest at the end of expiration without relief. Onset of pain in chest was preceded by a severe cold of 7 days' duration which she thought had localized in this region.

*Past History.*—No severe illnesses, no familial disease tendencies, such as tuberculosis. Menstruated at 14, regular every 25 days, duration 3 to 5 days, moderate, no dysmenorrhea or vaginal discharge. Married late in 1928. Never pregnant. Husband living and well.

*Physical Examination.*—Patient well developed and nourished. Quiet in bed and in no evident distress. Pupils equal and regular. React to light and dark. Eye muscles intact. Teeth in good condition. Gums, tongue and tonsils appear healthy. Neck, no adenopathy. Thyroid normal. Chest, dullness below inferior angle of left scapula which slants downward around to anterior chest. Breath sounds over this area decreased, no rales. Respiration not accelerated. Remainder of chest negative. Heart, apparently normal. Abdomen, soft, no rigidity, flanks tympanitic, no tenderness, no organs palpable. Extremities and reflexes normal.

*Laboratory.*—January 27, 1930. Urine, clear, straw color. S. G. 1020, acid, no albumen, sugar or casts. Blood: white corpuscles, 9860; R.B.C., 4,000,000; hemoglobin, 80 per cent. X-ray of chest, January 29, 1930, some increase in the peribronchial markings of both lungs; no definite areas of infiltration or consolidation. Condition probably due to bronchitis.

Tentative diagnosis at this time: Pleurisy with effusion.

#### PROGRESS

*Temperature.*—Entered hospital with temperature 98.4 F. The first nine days after admittance temperature varied from normal to 100.8; from the 10th to the 15th day it varied from 99 to 101.8; on the 15th it rose to 103 F. at 4:30 p. m. and from the 15th to the 19th day, when patient expired, the temperature ranged from 99 to 103.

*Pulse.*—Pulse rate varied from 80 to 108 until two days before death when it reached 120. At 4:30 p. m. of the following day it was 140, the temperature 100.4, the respiration 28. At 7:30 a. m., one and one-half hours before death, pulse was 144, temperature 100.8, respiration 28. This later pulse rate may have been due to two factors, (1) toxemia or myocardial damage, (2) anoxemia due to the extreme anemia, the red count being 1,300,000.

*Respiration.*—Respiration ranged from 22 to 28 throughout, except on the 5th day after admittance when a rate of 36 was recorded.

*Mouth and Pharynx.*—Five days after admittance patient developed an acute gingivitis which progressed rapidly giving the appearance of trench mouth. Gums were swollen and tender, teeth became loose and there was marked swelling of the cervical and submaxillary glands. X-ray of teeth nine days after admission showed the following condition: The left lower, first molar tooth shows periapical involvement. The remaining teeth show extensive pyorrhea. The right remaining lower molar is suspected of periapical involvement. The right upper first bicuspid and the left upper lateral incisor show periapical involvement. X-ray diagnosis, extensive destruction of alveolar processes, due to pyorrhea. Tenth day after admission gums were swollen almost to edge of teeth. Tonsils, peri-



tonsillar area and soft palate greatly swollen and angry looking. Breath foul. Fifteenth day, greenish-gray gangrene at junction of hard and soft palate in roof of mouth, some gangrene of gums, especially upper. Throat extremely septic and breath very foul.

**Lymphatic Glands.**—On fifth day, with onset of mouth condition, glands at angle of jaws were moderately swollen and a bit tender. Cervical, supraclavicular, axillary, inguinal and femoral glands moderately enlarged, firm but not tender. As the disease progressed the lymphatic glands of the neck became greatly enlarged but other glands over the body did not enlarge proportionately.

**Spleen.**—The spleen evidently was enlarged before admittance, the dullness in left lower chest being due to this as further development of the case indicated. Left hypochondriac region became tender to palpation and on the thirteenth day the spleen extended to left costal margin on deep inspiration. On the fifteenth day the spleen was at costal margin on expiration. On the seventeenth day the spleen was two fingers below costal margin.

**Liver.**—Fifteenth day, liver dullness was two fingers below right costal margin. Seventeenth day, liver dullness extended from fifth intercostal space, midclavicular line, to level of umbilicus. This enlargement was very rapid.

**Blood.**—Upon admittance, reds, 4,000,000; Hbg., 80 per cent; white, 9,000. On the thirteenth day, white count was 150,000 with an enormous increase in lymphocytes; fifteenth day, white count, 215,000; sixteenth day, white cells, 255,000; reds, 1,330,000; Hbg., 60 per cent; seventeenth day, white count, 480,000. Blood taken for culture one day before death was negative; Wassermann, positive.

**Material Examined.**—One blood smear was stained with Wright's stain, one with oxidase stain.

Differential count showed (Wright's stain):

1. Granulocyte series. Myeloblasts:

Myelocytes:

Eosinophilic, 0 per cent

Neutrophilic, 0 per cent

Basophilic,  $\frac{1}{2}$  per cent

Neutrophils:

J. K., 0 per cent

Stabs, 2 per cent

Segmented, 1 per cent

Eosinophils, 0 per cent

Basophils, 0 per cent.

2. Monocytes (large mononuclears),  $\frac{1}{2}$  per cent.

3. Lymphocytes (adult), 20 per cent.

4. Lymphoblasts (practically all typical), 76 per cent.

Oxidase stain: Per cent of cells with oxidase granules, 5 per cent. This slide appears to be an acute lymphatic leukemia. The percentage of granulocytes and monocytes is extremely low. The lymphoblasts seem typical. The total white count is obviously very high. One erythroblast was seen. Red cells typical of severe secondary anemia.

#### AUTOPSY REPORT

**General Appearance.**—The body is that of a well developed and well nourished white female. The face is puffed; feels doughy. There are two small petechial hemorrhages on left cheek. Nothing remarkable about habitus. Rigor mortis had not set in two hours after death.

**Head.**—Skull not opened. Herpes labialis present. Gums, as much as could be seen, especially upper, gangrenous. Brain not examined.

**Thorax.**—Well developed and well nourished. Petechiae present over lower part and under right

heart along site of adhesive plaster. Heart free in pericardial cavity. Right atrium and ventricle dilated. Pericardial fluid clear. Numerous petechiae over entire epicardium. Coronaries not sclerosed. Heart opened in usual way. Endocardium covered with numerous petechial hemorrhages. Valves apparently normal. Heart muscle soft but not flabby. Lungs free in pleural cavity. No adhesions found. There are numerous hemorrhagic areas throughout closely resembling hemorrhagic infarcts. These are solid and hard to cut through. The lung pleura is covered with small hemorrhages. The parietal pleura is also covered with hemorrhages.

**Abdomen.**—Parietal and visceral peritoneum covered with numerous hemorrhages; also the omentum. Liver, greatly enlarged, lower level at umbilicus. Cuts very easily. Greatly engorged so that blood oozes from cut surface. Spleen, moderately enlarged and greatly engorged. Sections easily. Parietal peritoneum next to spleen a mass of coalescent hemorrhages. Kidneys, apparently normal. Stomach, apparently normal. Small intestine, peritoneum filled with numerous petechial hemorrhages. No hemorrhages into lumen. Colon, peritoneum filled with numerous hemorrhages. Pelvis, ovaries, tubes and uterus apparently normal. Bladder has a few hemorrhages into walls.

**Diagnosis.**—Acute lymphatic leukemia.

#### MICROSCOPICAL FINDINGS

**Lymph Glands.**—Sections show a most remarkable hyperplasia completely replacing the normal architecture of the glands. Neither the sinusoids nor the follicles can be made out. The parenchyma is remarkably vascular and the hemorrhages seen suggest increased fragility of the vessel walls. The cell type is very suggestive of the lymphocyte but the cell is slightly larger and the nuclei are less pyknotic.

**Kidneys.**—Sections show a remarkable degree of leukemic infiltration more marked about the medullary portion. There are foci of infiltration in the cortex largely localized about the glomeruli and vessels, but also there is a slight infiltration throughout the interstitial tissue of this layer. The infiltration has produced a pressure necrosis of the parenchyma roughly proportional to the degree of leukemic infiltration.

**Lungs.**—Sections show a lax bronchopneumonia together with the changes of rather long-standing passive congestion and edema. The vessels are distended and filled with lymphocytes. The exudate is largely lymphoid and there is a moderate leukemic infiltration of the peribronchial and interlobular connective tissue.

**Spleen.**—The spleen shows remarkable lymphoid hyperplasia, almost to the degree found in the lymph glands, filling the sinusoids and rendering the malpighian bodies quite indistinct.

**Ovary.**—Sections show considerable leukemic infiltration and a remarkable degree of hyperemia with foci of capillary hemorrhage again suggesting the increased fragility of the vessels.

Case 2. V. M., white woman, aged 23, married, American, floor lady in store, admitted to City Hospital, Jan. 27, 1930, 1:40 p. m., conscious and rational.

**Chief Complaint.**—Painful ulcerated area on lower left gum; lower left mandible painful, swollen; some dyspnea since admittance.

**Present History.**—Two months before admittance to hospital her ankles became painful and swollen. One week later this pain extended up the legs (seemed to travel through the bones) to the knees. At this time she consulted a physician who told her that she had rheumatism and prescribed some medi-

cine. Painful condition of knees lasted about one week. About the beginning of third week arms became painful and remained so for two weeks. Patient was not confined to bed. About one month from original onset of pain, it disappeared. With disappearance of rheumatoid pain she developed a dull constant ache in the epigastrium, no nausea or vomiting. She went to bed under the care of a physician and one week later felt better. Because of weakness and fatigability she did not return to work at this time. About the beginning of the fifth week throat became sore and swallowing a bit difficult. She painted tonsils and pharynx with mercurochrome and her condition seemed to improve. About the seventh week her left lower jaw became painful, irregularly. A dentist found an ulcerated area inside of left lower gum and made a diagnosis of trench mouth. He treated her two days without improvement, so she decided to enter the City Hospital, which she did thirty hours before her death.

**Past History.**—No serious illnesses such as fever, diphtheria. No operations. Appetite poor since 2 weeks after onset of illness. Bowels irregular since onset of illness. No urinary symptoms. Slept poorly past month. Father, mother, seven brothers, sister, living and well.

No suggestive family history. Married in 1928. Husband living and well. She was never pregnant. Menstruated at 14, regular every 28 days, duration 3 to 4 days, moderate, no dysmenorrhea. Flowing at present. No knowledge of venereal infection.

**Physical Examination.**—Mature white woman, conscious and rational, moderately well nourished, pale and anemic in appearance. Nose, nares open widely at each inspiration. Face, pale; anxious expression. Appearance that of an extremely ill person. Eyes, pupils equal, regular, react to light and accommodation.

No abnormal eye findings. Mouth, marked halitosis, mucous membranes pale, tongue dry and coated, teeth in fair condition, gums pale and a bit retracted. On buccal surface of gum in region of left lower molar teeth there is an area of ulceration and necrosis about 1 by 3 cm. It is a dirty dark gray in appearance, very tender and beneath the superficial exudate one can express pus. Tonsils are markedly hypertrophied and angry looking. Pharynx relatively clean. Neck, some swelling over left mandible, angle of jaw and submaxillary gland which is tense and only moderately painful. Cervical and supraclavicular glands palpable and discrete; one is the size of a small plum. Thyroid is normal. Chest, respiration moderately rapid, rate 36. Soft tubular breathing over left hilus region and a friction rub to auscultation in left chest below angle of scapula and in axillary line; otherwise negative. Heart, normal size and location, action regular and rapid; rate, 126; functional systolic murmur at apex. Pulse, regular, rate 126, low tension. Abdomen, a bit distended. Very little movement upon respiration. Marked tenderness and rigidity in upper one-half, especially in upper left quadrant; inguinal lymphatics enlarged. Spleen, easily palpable, firm to touch and very tender. Liver, border two fingers breadth below costal border, margin feels round.

**Laboratory.**—Urine, clear, amber, acid 1028, albumin 4 plus, sugar negative. Few hyaline and granular casts. Microscopic examination shows many squamous epithelial cells and moderate amount of pus cells (noncatheterized specimen). Blood, Hbg. 40 per cent; red cells, 1,370,000; white cells, 325,000; color index, 1.6.

**Material Examined.**—One slide stained with

Wright's stain; stain rather more blue than normal. Differential count showed:

1. Granulocyte series. Myeloblasts:

Myelocytes:

Eosinophilic,  $\frac{1}{2}$  per cent

Neutrophilic, 1 per cent

Basophilic, 0 per cent

Neutrophils:

J. K., 0 per cent

Stabs,  $\frac{1}{2}$  per cent

Segmented, 2 per cent

Eosinophils, 1 per cent

Basophils, 0 per cent.

2. Monocytes (large mononuclears), 12 per cent.

3. Lymphocytes (adult), 18 per cent.

Lymphoblasts, typical, 53 per cent.

Lymphoblasts, atypical, 12 per cent.

The slide appears to show an acute lymphatic leukemia. The cells listed as atypical lymphoblasts stain in both nuclear and cytoplasmic zones as do the typical lymphoblasts. The nucleus however in these cells is broken or lobulated. Three erythroblasts were seen. The red cells have the appearance common in severe secondary anemia, namely, marked achromia and small average red cell diameter. The leukocyte total count is obviously very high. The percentage of monocytes is rather high for the typical leukemia picture.

Smear from ulcerated gum shows almost all bacteria to be staphylococci, streptococci and a few spirochetes. Culture negative for diphtheria. Blood culture negative for bacteria. X-ray of chest showed a marked increase in the peribronchial markings of both lungs but there are no definite infiltrations or areas of consolidation. Condition probably due to congestion.

PROGRESS

During the thirty hours while in hospital before death the temperature varied from 98 to 101.4 F., respiration from 22 to 36 per minute, pulse from 100 to 136.

**Postmortem.**—Multiple petechial hemorrhages in serous membranes of heart, lungs and abdominal viscera. Lymph nodes of abdominal cavity enlarged and hemorrhagic. Spleen enlarged, weight 1000 grams. Liver markedly enlarged.

MICROSCOPICAL FINDINGS

**Lymph Glands.**—Sections show a most remarkable hyperplasia with complete filling of the sinusoids with small round cells and overgrowth of these cells to the degree that the normal architectural markings are masked. There are a few ghosts of lymphoid follicles which may be recognized only by the focal distribution of typical lymphocytes about the gland that shows a paler staining and larger type of cell than the normal lymphocyte.

**Kidney.**—Section of kidney shows a moderate cloudy swelling of the tubules and a moderate proliferative arterial disease shown by proliferation of endothelial cells of the glomerular tufts, sclerotic thickening of medium-sized vessels and radiating scars as found in vascular kidney disease. There is also a mild leukemic infiltration along some vessels and within the areas of linear scarring.

**Pancreas.**—Sections show a slight intralobular interstitial pancreatitis with increase of intralobular interstitial tissue and some atrophy of parenchyma. There is a slight myeloid, eosinophilic and neutrophilic infiltration of the interlobular connective tissue.

**Spleen.**—Sections show a lymphoid hyperplasia almost equal to that found in lymph glands but there



are irregular areas of less densely infiltrated pulp with large congested sinusoids.

*Liver.*—Sections show a moderate leukemic infiltration most marked in the portal spaces but also extending from this region into the contiguous sinusoids. The cells show a considerable proportion of undoubted myeloid cells. There is also biliary pigmentation of the liver cells probably due to obstruction to bile ducts occasioned by the leukemic infiltration about the ducts in the portal space.

#### COMMENT

It may be interesting to compare our patients with a classical case of acute lymphatic leukemia. Not infrequently, following some infection such as tonsillitis, a furuncle, or an abscessed tooth, the patient is taken suddenly ill with rise in temperature, headache, general malaise and extreme prostration, pallor of the skin and mucous membranes and there may be noticeable dyspnea.

The gums are frequently swollen, red, spongy and bleeding, reminding one of scurvy. The tonsils may be enlarged and angry in appearance. The pillars of the fauces, soft palate and pharynx may be involved and one or all structures, including the gums, may show necrotic or gangrenous processes.

The regional lymph glands of the jaw and neck enlarge rapidly. The picture is so similar to an ordinary infection that the true nature of the process is frequently unrecognized at first, especially by one who has never seen a case of this disease. The lymph glands over the body may be enlarged. There may be hemorrhage from the mouth, nose or gums, and petechial or ecchymotic hemorrhages in the skin or mucous membranes, as well as serous membranes or other organs or tissues of the body.

Enlargement of the liver may be slight or marked. The spleen is enlarged but may not be palpable. Both the liver and spleen may be very tender to percussion and palpation with abdominal rigidity. Vomiting, severe diarrhea and hemorrhages from the bowel may occur. The urine frequently shows albumin and casts. The bones may be sensitive to pressure.

If the blood is examined at the onset the white cell count is practically always subleukemic, ranging from a few thousand to 30,000 per cm. In some instances the count may rise rapidly day by day to several hundred thousand within a period of one to two weeks. An occasional case may remain aleukemic throughout its entire course. The first impression upon glancing at a stained specimen is that most of the cells are large and small lymphocytes. There may be a rapid fall in the red count to as low as 1,300,000 with a color index of one or less. Red cells may show slight irregularity in size and shape.

#### CONCLUSIONS

Our patients show most of the characteristic signs of acute lymphatic leukemia.

The onset in each case was very misleading as to the true nature of the condition.

Case 1 began with typical signs of pleurisy, characterized by severe cold, pain in left lower chest aggravated by deep inspiration and accompanied by irregular temperature. Later, physical signs over this area were those of probable pleurisy with effusion or empyema. At this stage no other signs or symptoms were evident. Later development of case showed this to be due to an enlarged spleen and hemorrhagic perisplenitis.

Case 2 was equally deceptive. It began with rheumatoid symptoms, characterized by swollen and painful ankles with involvement of the knees one week later. The patient stated "that this extension seemed to travel through the bones which were painful." The arms became painful later. This pain in the bones was probably due to involvement of the bone marrow as is found in these cases. This patient also had an audible friction rub over splenic area.

The inflammation of tissues in the oral cavity was very characteristic in both cases. The gingivitis in Case 1 caused the gums to swell to the incisor margin of the teeth. There was ulceration and necrosis of the gums in both cases which, in Case 1, involved the hard and soft palates. The appearance of the tonsils and peritonsillar areas was angry, swollen and septic. All these attest to some virulent process.

The lymphatic gland enlargement of moderate degree was generalized in both cases. These glands when incised had red, almost pultaceous centers, evidencing marked activity.

The enlarged spleen in both cases produced symptoms of dry pleurisy in Case 1 and an audible friction rub in Case 2. Autopsy report shows perisplenitis in both cases, very marked in Case 1.

The hepatic enlargement was marked and in Case 1, very rapid in the last few days, extending to the umbilicus before death. As these organs enlarged, tenderness over the upper half of the abdomen became very acute.

Typical petechial hemorrhages were noticed in various parts of the skin of the first patient and extensive hemorrhages were observed about the serous surfaces of the thoracic and abdominal viscerae of both patients at autopsy.

The blood changes were very characteristic. In Case 1, which was observed early, the blood picture was subleukemic, with a rapidly developing lymphocytosis showing 96 per cent

lymphoblastic cells before death. Case 2, observed late, showed 83 per cent lymphoblastic cells. The red cells were decreased in Case 1 to 1,350,000 and in Case 2 to 1,370,000. The color index in each case was high.

Ordway and Gorham<sup>9</sup> state "that cases of true leukemia never recover. . . . That the duration in the acute types is from a few weeks to months, the average being 3 to 5 weeks." However, since the onset may be very insidious, as in Case 2, the exact duration cannot be definitely determined.

From the history, the duration of Case 1 was 22 days and of Case 2 approximately two months. From the foregoing reports I think it is definitely established that these were two cases of acute lymphatic leukemia.

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### CARBOLFUCHSIN PAINT IN THE TREATMENT OF EPI- DERMOPHYTOSIS

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A large percentage of the failures in the treatment of fungus infections of the skin can be traced to the fact that the recognized principles of dermatological therapy have not been thoroughly understood or applied. Among the reasons for poor results may be mentioned overtreatment, the use of stimulating preparations in acute cases, and over-zealous attempts at exfoliation. The widespread use of Whitfield's ointment as a specific is to be condemned as it is contraindicated in the acute cases while other types are aggravated by its unskillful use.

To overcome the disadvantages of ointments, which are usually messy, various parasitocidal dyes have been advocated from time to time. Among these may be mentioned picric acid, alcoholic solutions of iodine, gentian violet, potassium permanganate, mercurochrome, and chinisol. Picric acid has been found to be toxic, iodine solutions too irritating, potassium permanganate and mercurochrome often ineffective, gentian violet and chinisol parasitocidal but having no other properties.

In 1925 Castellani developed a preparation that was not only harmless, but had several advantages over any of the preceding dyes. This solution of basic fuchsin, phenol, acetone, boric acid, and resorcin is not only parasitocidal, but antipruritic and stimulating. After two years' trial, the writer has found it superior to any of the preparations formerly used in the treatment of the various types of epidermophytosis.

The solution is made as follows: To 10 c.c. of a saturated alcoholic solution of basic fuchsin is added 100 c.c. of 5 per cent aqueous carbolic acid. This mixture is then filtered and 1 gram of boric acid added. After two hours 5 c.c. of acetone is added. The mixture is permitted to stand for two more hours and then 10 grams of resorcin is added. The paint is then put in a dark-colored bottle having a glass stopper. It is advisable not to prepare a larger quantity at one time as after standing for more than a month the solution loses its bright red color and tends to lose its body and thin out. To remove the intense stain a 10 per cent solution of sodium bisulphite should be used, as suggested to me by Dr. D. L. Sexton.

The paint may be diluted with equal parts of water in treating acute cases, but should be used full strength in chronic types. It may be used daily or every other day, depending upon the severity of the disease. Before applying, it is important to remove all ointments used previously as well as crusts and débris by sponging off the affected areas with ether, benzine, or carbon tetrachloride.

In a great many acute cases there is no need for using Whitfield's ointment as nature has probably already exfoliated the epidermis by producing a vesicular or eczematoid condition. The improper or continued use of Whitfield's ointment in these cases not only may spread the infection but may cause a denudation, exposing the dermis, causing pain and discomfort.

In Castellani's preparation, the basic fuchsin is the parasitocidal agent, staining the skin a deep red, which persists for several days. Carbolic acid is antipruritic. The boric acid prevents secondary infection, and the acetone favors the penetration of the dye into the deeper layers of the epidermis while the resorcin is stimulating and favors the return of the skin to the normal state.

The paint is used as described for the following conditions:

1. *Acute Eczematoid Ringworm (All Wet or Vesicular Types).*—All vesicles should first be punctured. Strictly avoid the use of soap and water. Plain Lassar's paste may be used for a few days until the vesicles dry up and desquamate and the inflammation decreases. The paint should be used diluted or full strength daily or twice a day. The toes should



be kept apart by small pledgets of cotton wool.

2. *The Chronic Eczematoid Types (Dry, Scaly Types).*—In these cases Whitfield's ointment may be used until exfoliation occurs, but no longer. Then the carbolfuchsin paint should be used every day. In stubborn cases X-ray treatment may be necessary.

3. *Pruritus Ani and Vulvae (Mycotic).*—The paint should be used daily. Relief from the itching is rapidly obtained.

4. *Tinea Cruris.*—In those cases that fail to respond to Whitfield's or sulphur-salicylic ointment, the carbolfuchsin paint will be found to be very useful, especially in the superficial types.

5. *Pompholyx.*—In these types of cases the best results are obtained with the X-ray. It is also wise to put the patient on a nonprotein diet. After a week's use of the paint the vesicles frequently dry up and disappear.

6. *Epidermophytids.*—These manifestations of an allergic skin in the presence of the *Epidermophyton* are usually cleared up quickly after a few days' use of the paint, of course the primary focus must be found and treated.

#### SUMMARY

1. Many cases of epidermophyton infection are not benefited by Whitfield's ointment because they are overtreated.

2. Carbolfuchsin paint has been found to be the ideal treatment for the average case in that it combines the action of a parasiticide, antiseptic, antipruritic, and stimulant.

3. The paint is a 10 per cent alcoholic solution of basic fuchsin, containing 5 per cent aqueous carbolic acid, 1 per cent boric acid, 10 per cent resorcin, and 5 per cent acetone. The paint has been found satisfactory in all the various types of epidermophytosis.

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## THE TREATMENT OF CHRONIC HEART DISEASE\*

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It is a truism in medicine that treatment is dependent upon a diagnosis, which in turn is developed from a history of the patient's previous condition and a physical examination supplemented by various laboratory proce-

dures. Individuals suffering from chronic heart disease are no exception to this rule. I shall endeavor to show how we handle these cases in my service at a large general municipal hospital.†

In writing histories we try to make them comprehensive so as to include all the facts concerning the patient's past, whether or not those facts seem to have an immediate bearing upon the probable diagnosis of the disease. History writing is an art and should be developed by students and interns, for it is well recognized that a carefully written history is probably the most important part of the examination of the patient. It is interesting to note that in allergy,<sup>1</sup> one of the newer specialties, it is extremely important to obtain from the patient his particular reaction to certain foods, plants and animals rather than to rely entirely upon skin reactions. As the patient tells his story the experienced clinician has an opportunity of tracing the abnormal reactions, sometimes over a long period, and will find that these reactions are repeated at frequent intervals. History writing is sometimes a hurried affair and tends to become perfunctory. The result is what I call "static." By that I mean, once obtained never changed. Most histories need to be checked over subsequent to the first interview, often many times, so that when they finally emerge for consideration they will tell a true concise story.

In the history of heart cases we are interested especially in the occurrence of infections that might give rise to trouble in that organ. The particular infection that concerns us most in children and young adults is rheumatism for this is the causative agent in a very large number of those we are subsequently called upon to treat for heart disease. Sir George Newman,<sup>2</sup> principal medical officer in the English Ministry of Health, says: "Practically speaking, every death from heart disease under the age of 40 (save the few due to congenital disease) is due directly to rheumatic infection—all those unfortunate cases of adolescents and of young adults, of fathers and of mothers of young families. . . . Of all patients with cardiac disease in hospitals, the cause is definitely acute rheumatism in approximately 90 per cent of those who are under 10 years of age, in 80 per cent of those between 10 and 20, and in 60 or 70 per cent of those between 20 and 40 years of age." While these remarks emanate from a country noted for the prevalence of rheumatism, the number of rheumatic hearts in any country is very large although not to the extent indicated above. In our own country Swift says 95 per cent, Rothchild, 91 out of 94,

\* Read at the 72nd Annual Meeting of the Missouri State Medical Association, Springfield, May 13-16, 1929.

† St. Louis City Hospital. (Washington University Unit.)

and Reid and Kenway<sup>3</sup> in all their cases demonstrated a cardiac involvement in rheumatic fever.

Just what shall be called rheumatism in a history is sometimes not clear. Rheumatic fever, chorea, tonsillitis, some muscular pains, growing pains in children, certain types of heart disease such as mitral stenosis, certain skin manifestations, are usually considered as coming under this head. This list has been extended by Wiesel<sup>4</sup> to 80. Veil<sup>5</sup> says, "The fully developed picture of acute articular rheumatism includes pancarditis, pleuritis, bronchopneumonia and peritonitis. In every case of subfebrile temperature which cannot be explained by pulmonary disease, rheumatism should be suspected. Brief attacks of icterus, chronic bronchitis and more especially, nephritis, are frequent equivalents of articular rheumatism. In searching out the presence of rheumatism, the conception of the ebb and flow of a general infection must be borne in mind." Pappenheimer and von Glahn<sup>6</sup> describe rather new pathological manifestations of rheumatic infection as follows: "These new features of interest are an aortitis with peculiar characteristics not heretofore described and a specific type of panarteritis affecting the larger arteries (coronaries, renal, superior mesenteric and celiac axis)." A number of years ago the general idea was that in some children with an acute attack of rheumatism the heart became involved but that many escaped. Recently these views have been changed so that now clinicians question whether any frank rheumatic infection leaves the heart untouched. So, too, the idea that after an acute attack the child became cured of its rheumatism has been seriously challenged by a number of writers like Bezancon and Weil<sup>7</sup> who look upon rheumatism as a subacute if not chronic infection lasting years; and they point out the resemblance in this respect to syphilis and tuberculosis. Another interesting development is the attitude taken by men like Swift<sup>8</sup> who see the arthritis and other body reactions of rheumatic fever as an allergic manifestation of a nonhemolytic streptococcus. This allergy is a bacterial toxin allergy similar to that seen in tuberculosis and syphilis.

Perhaps the next most important etiological factor in the production of heart disease is syphilis which usually produces its effects much later in life than does the rheumatic infection. These cases show themselves clinically as an aortitis, frequently involving the aortic valves; as a disease involving the coronary arteries or the myocardium itself. Other infections sometimes produce chronic heart disease, such as scarlet fever, influenza, and pneumonia. Then

there is the rather specific heart poisoning from the diphtheria toxin and the heart disease caused by thyrotoxicosis. Of course arteriosclerosis while not infectious in character is responsible for a large number of cases of heart disease. It is well to remember that a positive Wassermann does not necessarily mean a luetic etiology in a heart condition, especially if the mitral valve is involved and the patient is young. Aortic regurgitation is sometimes of rheumatic origin even when the patient has had syphilis.

In obtaining a history in a heart case it is customary to secure an orderly account of the symptoms usually present in heart disease. These are dyspnea, palpitation, cough, edema, cyanosis; but many patients have these symptoms from causes other than cardiac. The points to be covered in a history can be visualized in the charts recommended by the American Heart Association.\* One chart is a very elaborate form suitable for highly developed institutions and clinics, and takes up in a detailed way the family history, obstetrical history, habits and hygiene, cardiac symptoms and the morbidity history. Under the last heading the various evidences of rheumatic infections are described minutely. Inquiries are made relative to previous infections of all kinds and such diseases as hyperthyroidism that might be contributory from an etiological standpoint. The second history form covers the same ground as the first one but it is more simple and is adapted for more general use.

The next step is the physical examination of the patient, comprehensive in nature and accompanied by the usual laboratory examinations. In a suspected heart a rather more searching routine is followed in the examination of the cardiovascular system. It is generally agreed among those who have had most to do with these cases that inspection, palpation, percussion and auscultation constitute the backbone of our diagnostic methods. These should be made and findings definitely recorded in the order named to obviate the common failing of subconsciously recording the first three in the light of auscultatory impressions. It is a wise precaution to check over the physical examination perhaps several times for it is seldom that all observations are made correctly at the first examination. This prevents the "static" condition referred to under history taking.

We have in these four methods of examination a very powerful group of procedures which have not only certain significances in their results individually but in addition to this,

\* American Heart Association, 370 Seventh Avenue, New York City.



one sometimes serves very well when another fails. It is not unusual to see an apex that you could not locate by palpation, and vice versa. Then again, three or four methods used to ascertain one fact have a cumulative evidence, such as seeing and feeling the point of maximum impulse which can be still further located by percussion of the left border which is usually located 1 to 2 c.m. to the left of the visible beat. After this physical examination is made we examine by the usual laboratory tests,—urine, blood, etc. Frequently in cardiac cases we have recourse to supplemental methods of examination, such as fluoroscopy, roentgenography, basal metabolism, sphygmomanometry, and electrocardiography.

I wish to show at this time charts suggested by the American Heart Association for use in making heart examinations. The first chart as previously mentioned is very comprehensive and complete. From this you can get a very good idea of the relative value the association gives to the various methods of examination. It is obvious that they lean heavily on the time-honored methods of physical examination. The other chart, a simpler one, indicates the same thing.

Percussion is used to outline the relative and sometimes absolute cardiac dulness, including in this the dulness of the great vessels above the heart. In the sitting position the patient's midsternal line is indicated by a ruled pencil mark and percussion made on the right side in the first, second, third, fourth, and sometimes fifth spaces, and on the left side in the first, second, third, fourth, fifth, sixth, and occasionally the seventh. We then measure each of these from the midsternal line in the interspace, also the point of maximum impulse in centimeters from the midsternal line. In many hearts enlarged markedly to the left we project with a ruler the left border in the fourth, fifth and sixth spaces from an anterior axillary position; for instance, to the frontal plane where we measure the distance from midsternal line. The distance of the farthest points to the right and left are added in the supracardiac area and this we call the width of the "aorta" and the same addition in the cardiac area gives us the greatest transverse diameter of the heart.

When a diagnosis is made after taking a careful history and making various examinations, it should show at least (1) etiology, (2) anatomy, (3) physiology, (4) function. Here I show you the nomenclature for cardiac diagnosis approved by the American Heart Association. As one examines this list it is not difficult to pick illustrations of the fact that when a diagnosis is made in this way your

therapy is outlined for you. For instance, in the etiological part the rheumatic qualification calls attention to the need of antirheumatic measures. This indication is especially desirable in view of the recent opinions of many writers that rheumatism is at least a subacute disease lasting several years.

Syphilis should be treated when thought to be a cause of heart disease but with no great optimism as to the results. In our hospital we do not have these cases under observation for a sufficient length of time to treat the syphilis adequately but we have seen so many cases treated thoroughly in clinics without apparently staying the progress of the trouble that we are not sanguine about the effect of the drugs used.

The thyroid etiology brings up a very interesting group about which a great deal has been written in recent years. The cardiologist should not attempt to cure these patients with digitalis; he should realize that this drug has only a small, but at times necessary, place and that drugs acting on the thyroid and the removal of the gland are the major phases of treatment.

The toxic bacterial toxins acting on a heart produce a condition requiring a special plan of treatment. The cardiac neuroses do not call for any of the usual heart remedies although they are often given, helping in this way to fasten attention on the heart. The treatment should indeed be directed away from the heart toward the nervous system. Here can be mentioned three diseases that are very common and at times offer the greatest difficulty in making a differential diagnosis although this distinction is very important because the treatment of one disease is radically different from the other. I refer to early pulmonary tuberculosis, hyperthyroidism and a cardiac neurosis, or the neuromuscular asthenia of war times. Fortunately, basal metabolism helps us out in this situation.

When in the group designated "General System Diseases" we encounter a heart disease in diabetes, chronic nephritis, hypertension, or anemia, we should realize that heart therapy will be only partially successful without treatment of the underlying condition.

As we pass to the group of anatomical or structural diagnoses we find no special indication for treatment until we arrive at chronic myocarditis, which is a term clinically including hypertrophy, degeneration, dilatation and actual inflammation. If the inflammation is of rheumatic character antirheumatic treatment is suggested. So luetic hypertensive and arteriosclerotic myocarditis has a part of its treatment suggested in its etiology. The chronic valvular diseases suggest a rheumatic etiology and hence treatment in mitral and

aortic lesions in young individuals. The aortic lesions are usually luetic or arteriosclerotic in older patients and the treatment is that of prolonged rest, morphine, nitroglycerine for acute attacks and possibly some of the newer drugs, as the xanthine derivatives. Coronary thrombosis of course suggests arteriosclerosis.

When we reach the physiological part of the diagnosis we come upon the most important phase for it is here that we use cardiac remedies to alter abnormal physiology. There are some in this list that do not concern us very much and some diagnoses that are made only by the electrocardiogram. The sinus arrhythmia is mentioned here only to emphasize its unimportance as it does not call for any treatment. The ventricular tachycardias are occasionally caused by digitalis which should be immediately withdrawn when this condition appears. Premature contractions formerly occupied a place in the group of unfavorable findings largely because they were confused with an intermittency of the heart but at present, if unaccompanied by other signs of a diseased heart and if occurring only occasionally, they are considered as relatively unimportant. However, in older patients they are often present in such numbers as to constitute an irregularity which to the uninitiated is often mistaken for an auricular fibrillation and digitalis prescribed although this drug has no particular influence on these contractions. Several writers have given rules for distinguishing between these two arrhythmias. Perhaps the most important one to remember is that exercise generally increases the rate and irregularity of a fibrillation while no such effect is noted with the premature contractions and at times they even lessen.

Auricular flutter calls for digitalis which often breaks up the "circus movement" to that in fibrillation which in turn reverts to sinus rhythm. Auricular fibrillation in cases that have no break in compensation and when the condition has existed but a short time should receive quinidine. When once normal rhythm has been obtained an effort should be made to keep it there by "maintenance" doses of the same drug. Heart block of course is a contraindication for the use of digitalis. In some patients with a low grade block it is not difficult to change this into a high grade or complete block by the use of large doses of digitalis, especially in a patient about whose previous medication you have no knowledge. Hypertension after a while produces a cardiac enlargement which eventually may fail and then is subject to such medication as it needs on its own account. To forestall this, everything should be done to modify the hypertension.

Congestive heart failure and the anginal syndrome, especially the former, make up a very large number of the cases coming into our service and it is particularly with the treatment of these cases that we are concerned in what follows.

The functional capacity classifies patients as to their ability to exert themselves and is of great importance in private cases, those in clinics and after discharge from the hospital.

So when we at last come to a consideration of the treatment to be applied in an individual case it is apparent that the broad lines of therapy have already been laid out for us and there remains for consideration only the application of these principles in treating our patients in the large group we have in our city hospitals where patients come usually with well marked signs and symptoms, stay until they are improved, go out only to return in many instances with the condition about the same as at the previous admission or frequently worse.

There is purposely excluded from consideration here the badly decompensated cases where the cardiac condition is critical and must have definite help within two hours to prevent death. These cases are the most desperate of the medical emergencies and require prompt diagnosis and usually intravenous medication for their successful treatment. In the handling of patients other than these we try to put off a definite plan of treatment for two or three days. During this period we have time in which to secure a satisfactory history and make a physical examination on the basis of which we hope to institute our treatment. The patient is put in such a position as will rest him best, sleep secured by sedatives and morphine, for this in itself seems to "pull the patient together." The gastro-intestinal tract is emptied and the patient put on a liquid diet. It is remarkable to note how many of these patients start to improve without specific heart remedies. Generally speaking, in outlining a plan of treatment we make a "pharmacological" approach; that is, having made a diagnosis which has an etiological, an anatomical and a physiological side to it, we try to influence favorably the etiology and physiology by drugs, giving them in suitable doses at proper intervals for a sufficient length of time and observing definitely whether we actually are obtaining these results or not. At this point the clinician's judgment steps in to decide whether or not this particular therapy is desirable for the patient, all things considered. To illustrate: suppose we have an auricular fibrillation in a toxic goiter case. We perhaps try to control this with adequate digitalis medication; at the end of a week



we find no special improvement has been obtained; we then perhaps drop or continue the digitalis but introduce iodine for a week and then note the condition. In practical work with heart cases it is interesting to observe how little an anatomical diagnosis guides us in our treatment.

Because digitalis is the most important drug in cardiology there is a temptation to use it when not indicated, and also to consider it the only drug worth using. Both of these practices are bad, for, in the first instance, while the digitalis does no harm, the patient is usually not receiving other treatment that might help him. For example, an anemic individual may have a rapid heart for which digitalis is used but nothing will be gained by this until the anemia is corrected; again, in the second instance, nitroglycerine, morphine, quinine, and sedatives may be much better drugs than digitalis.

There are cases where digitalis is contraindicated, such as heart block, paroxysmal tachycardia without failure, effort syndrome, acute heart disease, compensated valvular heart lesions, surgical and traumatic shock, and after anesthesia, as pointed out by Bloedorn.<sup>9</sup> There are wide differences of opinion about the use of digitalis in infectious diseases, such as pneumonia, arrhythmias from extrasystoles, chronic pericarditis, coronary disease.

The principal condition in which digitalis finds its greatest field of usefulness is congestive failure with auricular fibrillation and without active infection. Among recent graduates there is a tendency to conclude that this is the only field for the successful use of digitalis. Bastedo<sup>10</sup> in an excellent article on digitalis therapy says that in cases of decompensation without fibrillation a few cardiologists feel it is without effect, several attribute good results, and many take a middle ground. This author says further: "In normal rhythm cases without tachycardia, it is true digitalis scarcely if at all affects the rate of the heart, and in many of the cases with decompensation but normal rhythm the heart may not show pronounced tachycardia and consequently there is no dramatic slowing as in the tachycardia of auricular fibrillation. But slowing is not necessarily a measure of the drug's value, and the good effects are seen in one or several of the following ways: increased urination, lessened congestion and accumulation of fluid in the chest cavities, disappearance of edema, cyanosis and dyspnea, reduction in size of the liver and of the heart itself and improvement in the general condition of the patient." Christian<sup>11</sup> is an earnest advocate of the use of digitalis in medium and small doses in cases of mild heart

failure ordinarily not recognized as such by examination. He uses the drug for a "diagnosis by therapeutics."

In view of the fact that we are not over-equipped with potent serviceable drugs in practicing medicine it is always desirable for the physician to thoroughly utilize the drugs he has, like digitalis. There seems to be no good reason why cases not conforming to the group reacting most satisfactorily to digitalis should be deprived of the possible benefit from this drug. It has been urged against this practice that digitalis is a toxic drug, that most of these cases occur in myocardiums, the seat of various degenerations and that a large dose will not be tolerated. It seems to me that all these things may be true and still digitalis in medium sized doses can be safely given when a patient is under careful observation. This attitude of a limited use of digitalis has been observed at other times but with respect to different phases of the use of digitalis in heart disease. I refer to the dictum of a generation ago that digitalis should not be used in aortic regurgitation because it lengthened the diastole, a situation which was not thought desirable. High blood pressure too was thought to be a contraindication but, fortunately for the patients, it was not as easy then as now to determine this. So many cases of aortic regurgitation and hypertension have been denied the benefit of digitalis when the heart failed.

Perhaps one of the most confusing situations in which we find ourselves at times is brought about by the admittance of a patient apparently in need of large doses of digitalis but who has been under treatment with that drug prior to admission. We cannot know at once whether the heart is irregular from digitalis or the heart

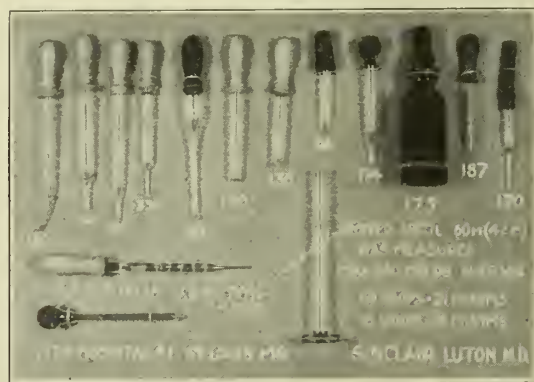


Fig. 1. Medicine droppers commonly secured by patients, sometimes in the box containing special digitalis preparations, and used by them in measuring the dose prescribed. It takes from 330 to 98 drops Tr. Digitalis, U. S. P., to make 60 minims by measure, averaging 164. The pipettes for measuring (below and to the left) are unsatisfactory. To their right is a graduated cylinder, which is the most satisfactory measure to use in taking digitalis in liquid form.

disease. Sometimes this same situation develops in patients under observation; but here we are not altogether at sea for we usually conclude that a patient whose general condition, rate and rhythm have improved and then at the latter part of his digitalization develops an increase in rate and irregularity had better have the digitalis discontinued. A very common cause of the failure to secure good results from digitalis in cases evidently suitable for its action, is in neglecting to see that the patient actually gets the amount you intend him to have when you order it. The drop idea in digitalis has proven very disastrous sometimes for the erroneous idea that a drop and a minim of digitalis are the same is widespread. They would be practically so if the solution were a watery one but tincture digitalis U. S. P. is about a 70 per cent alcohol preparation. All droppers give too small a dose, the patient receiving only about two-fifths of the intended amount which often reduces the quantity to a subtherapeutic dosage. Digitalis preparations have an alcoholic content of from 7 per cent to 50 or 70 per cent. Some of the accompanying special droppers are not then so much in error. Graduated pipettes are better than droppers but our experience with them has been unsatisfactory. The best way to measure digitalis is by the cubic centimeter, or even minims. The old fashioned four-ounce mixture containing 15 to 20 minims per teaspoonful is a satisfactory way of prescribing for ambulatory cases. Tincture digitalis U. S. P. should always be dispensed in a simple vehicle containing about 70 per cent alcohol. Figure 1 illustrates droppers in common use and the number of drops necessary to make 4 c.c., or 60 minims. They average about 20 so that when you prescribe 15 minims by drops your patient gets around 5 or 6 minims, an amount usually considered ineffective.

In our decompensated cases that have been digitalized for some time the edema occasionally fails to disappear and we then have recourse to some of the diuretics. Perhaps the most active are novasurol and salyrgan which we use in conjunction with large doses of ammonium chloride. Andison<sup>12</sup> urges the use of digitalization and novasurol at the same time where the patient is badly decompensated and it is desirable to secure a rapid loss of the edema, but watching the patient for mild mercurial poisoning in the kidney and gastrointestinal tract. We do not like to use this drug in extensive kidney damage with nitrogen retention both on account of the mercury and the tendency of the ammonium salt to produce an acidosis. However, we use extensively the xanthine derivatives such as theophylline, theo-

bromine sodiosalicylate, theocalcin and theophylline ethylenediamine. Sometimes one of these works better than the other in individual patients and so we frequently try one after the other. We have had several cases that seemed permanently water-logged relieved of their edema by these drugs although as in all long continued cases the element of time and rest has to be considered. We try also to keep them on a salt-free diet with a limited fluid intake but this is frequently difficult to do. If possible, we keep a record of fluid output but ordinarily we rely upon a weight loss which, other things being equal, indicates the loss of fluid.

Morphine we use in three classes of heart cases, those who need rest and support of the circulation when they come into the hospital, painful anginas, especially thromboses and nocturnal attacks of dyspnea, the so-called cardiac asthmas where this drug acts almost specifically presumably by its action on the respiratory center. This dyspnea is not to be confused with that from effort which symptom is common to all these decompensated cases.

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#### FRACTURES OF CLAVICLE

The clavicle is one of the most frequently broken bones in the body. Statistics show that from 5 to 10 per cent. of all fractures occur in the clavicle. E. L. Eliason, Philadelphia (Journal A. M. A., Dec. 22, 1928), believes that ambulatory dressings for fracture of the clavicle are generally unsatisfactory as regards comfort and anatomic perfection, although function is almost universally all that could be desired. The multiplicity of methods points to the unsatisfactory state of such fixation. The recumbent methods which take cognizance of the necessity of a scapula flat on the chest will give the best results anatomically as well as functionally. Complications other than associated bony lesions are very rarely due to the fractured bone itself. Open reduction is seldom necessary. It is the man behind the splint that counts.



## WASHINGTON UNIVERSITY CLINICS

### PUERPERAL INFECTION DUE TO ANAEROBIC STREPTOCOCCI

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Although Schottmueller as early as 1910 pointed out that anaerobic streptococci were frequently the offenders in puerperal infection, it was not until the work of Schwarz and Dieckmann in 1925 and 1926 that Schottmueller's contentions were definitely confirmed. Since then Harris and Brown have also shown that anaerobic streptococci play an important part in puerperal infection and just recently Taylor and Wright, of London, have demonstrated that these organisms are also frequently met with in their infections. In treating infection, both in the puerperium and after abortion, two plans have been followed, one conservative, the other radical. In Europe as well as in this country, opinions regarding the benefits of these procedures are about evenly divided. I believe, in applying these treatments, sufficient consideration has not been given to the offending organism. We feel that in case of hemolytic streptococcic infection discussion on the type of treatment can be considered; but when we are dealing with infection due to anaerobic streptococci the more radical treatment should be the method of choice. By radical treatment we mean the emptying of the uterus of its infected contents, working as gently as possible and using only blunt instruments to bring about the evacuation. Anaerobic streptococcic infection as a rule spreads less rapidly than infection due to the usual pyogenic organism. Therefore early intervention should lead to more favorable results. If anaerobic streptococcic endometritis is allowed to run its own course the infection, in many instances, will spread in the form of a thrombophlebitis resulting in a pyemia with marked multiple abscess formation in the lungs.

The case we are reporting illustrates very nicely a patient with anaerobic streptococcic infection who ran a fatal course in 5 weeks with no active treatment. Patient entered hospital with a diagnosis of general miliary tuberculosis and an acute diffuse tuberculous process throughout the lungs. Her chief complaints were weak-

ness and attacks of nausea and vomiting of one year duration; chills for 2 days. History on admission was not accurate as was later brought out when on January 23, 1930, it was learned through the patient and her sister that an abortion had been induced about three weeks before admission to this hospital. She was about three months pregnant when the abortion was induced (December, 1929). Following the abortion she developed fever, chills, and nausea and vomiting. She has been confined to bed since the abortion. Three blood transfusions were given. On January 28, 1930, an intra-uterine douche and culture was done by Dr. T. K. Brown and several pieces of material were obtained from the uterine canal. Patient expired January 29, 1930, at 6:25 p. m.

In autopsy the chief findings were in the lungs and the findings were as follows: As the lungs are removed, numerous abscesses are seen as hard yellow dots or spots, measuring from 1.5 cm. to pinpoint in size, and covered with fibrin over the pleural surface. On section, numerous small abscesses are seen throughout the lung substance. They are a little more numerous in the lower lobes on both sides. They seem to be of different ages. Some of them are only small yellow dots while others seem to be actual cavities filled with blackish material. These undoubtedly all open into bronchi. One large one is located in the right upper lobe and measures 2 cm. in its greatest diameter and burrows through the lung for a distance of about 5 cm. The pleura is edematous and congested with little flecks of fibrin on the surface while many alveoli are filled with coagulated edematous fluid. Part of them contain in addition red blood cells and polymorphonuclear leukocytes. Small abscesses, not well walled off, surrounded by areas of pneumonia and with liquified centers, are numerous. Near almost every one of these we identify a thrombosed vessel the walls of which are infiltrated with leukocytes. The lumina of some of the neighboring small bronchi are filled with polymorphonuclear leukocytes. Another area with a thrombosed vessel and hemorrhage shows a more recently formed infarct. Another section shows practically the same thing, but illustrates a little more clearly the thrombotic origin of the numerous abscesses seen in the gross. A third section includes a much older abscess the thrombotic origin of which cannot be demonstrated. This is situated just under the

pleural surface over which a layer of fresh fibrin is deposited. The peritoneal cavity was entirely negative and no evidence of peritonitis. On examination of the uterus a marked endometritis was found with a large number of streptococci. Small veins of the inner third of the uterus were involved in thrombophlebitis. A thrombus was found in the right ovarian vein and right uterine vein. Material about 2 cm. in diameter was removed by Dr. Brown from the uterine cavity one day before death. This material showed a marked acute inflammatory process, necrosis, and was also filled with streptococci. The blood cultures were negative throughout the course of the disease, but an anaerobic streptococcus was recovered from the uterus at autopsy and at the time of operation from the sputum and from the lungs at autopsy; a staphylococcus albus and a *B. coli* were obtained from the uterus and the staphylococcus was also recovered from the lungs, but the anaerobic streptococci were overwhelmingly the offending organisms.

This case is presented to show that cases of anaerobic streptococcal infection when left alone can spontaneously spread in the same manner as the usual pathogenic organisms do in puerperal infection. On account of the type of organisms and the character of endometrial lesion in anaerobic streptococcal infections, a more active type of treatment is recommended.

### OSTEOMALACIA IN PREGNANCY

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F. S., colored, was admitted on March 8, 1930, because of difficulty in walking. Patient is 33 years old. This is her ninth pregnancy and they have all occurred since 1918. She is at term May 15, 1930. In 1924 the patient first noticed difficulty in walking when she was 38 weeks pregnant. Following the delivery, she was unable to move her legs for several weeks. She has had four pregnancies since then and with each one has had increasing disability. With the last pregnancy in 1929 she was kept in bed by us for the last eight weeks because of inability to walk. At the time of discharge from the hospital she was still unable to walk and did not regain complete control of her legs until the baby was two months old. The examination is negative with the exception that there is about one-half inch movement in the symphysis. The X-ray pictures of the pelvis are negative. Blood and urine examinations are negative. The serum calcium was 10.8 milligrams and the phosphorus 3.6 milligrams per cent. Complete metabolic studies were obtained and will be reported. The patient was placed on a

diet containing 150 grams of protein, 275 grams of fat and 320 grams of carbohydrate, together with 5 grams of calcium gluconate three times daily (3.2 grams calcium and 3 grams phosphorus per day). Viosterol, 10 drops three times daily, and plenty of fresh fruit and vegetables were given for their vitamin content. The patient took this diet, which gave 4400 calories, without much trouble. She was permitted up and was able to walk to the delivery room on the 19th of April when she delivered a 2500 gram living fetus. On the 30th of April the patient was sterilized by a tubal ligation.

The significant features in the etiology of her condition are the repeated pregnancies with only short intervals between and an inadequate diet. The income varied, when the husband was working, from \$10 to \$15 a week. There are six living children. The diet consists, as a rule, of one meal per day which was a stew containing vegetables and meal. There was little or no meat, fresh vegetables or fruit and no butter or milk. All of the previous babies had severe rickets.

During a 30 day period of study she retained an average of 7.6 grams of nitrogen, 1.15 grams phosphorus and 1.16 grams of calcium per day. The figures for calcium and nitrogen are unusually high but they indicate the marked need for these constituents.

### DISCUSSION

Williams states that a history of rheumatoid pains and difficult locomotion requiring rest in bed during pregnancy associated with a decrease in height is almost pathognomonic of osteomalacia. Likewise DeLee states that pains in the back and legs, tenderness of the bones, muscular weakness, difficulty in locomotion, a waddling, twisting gait, and softening and separation of joints are characteristic of osteomalacia. He believes that about 25 per cent of the women have a mild osteomalacia.

Maxwell and Miles<sup>1</sup> reported on the occurrence of osteomalacia in China. They found in their district that at least one in fifty of the women of child-bearing age had or had had the disease. The characteristics of the disease as noted by the patients are, back and thigh pains. In the mild cases there is apparently no bone change. Repeated pregnancies predispose to the disease. They reported that the diet of these women consists of a small amount of cereals, with a limited quantity of vegetables and as a rule no meat, milk or eggs. They have gotten complete cures by giving a sufficient supply of salts (calcium) and suitable protein and carbohydrate and a sufficiency of the necessary vitamins.

It is impossible to make a positive diagnosis in this case of osteomalacia, but it is

1. Maxwell, J. P., and Miles, L. N.: *J. Obst. & Gynec. Brit. Emp.* 32:433, 1925.



very suggestive that simple dietary treatment relieved this patient's symptoms completely.

## THE TREATMENT OF CHRONIC NEPHRITIS\*

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A consideration of the treatment of chronic nephritis must involve two separate problems. We are concerned, first, with therapy designed to compensate for and correct abnormal renal physiology, and, second, therapy aimed to rectify the underlying condition causing the nephritis. The latter is a most difficult problem because of our slight knowledge of the etiology of non-suppurative kidney disease. So often we are helpless to stay the slow advance of the malady, not knowing why it exists. It appears certain that in many cases the process is of the nature of an obscure and puzzling response to a remote local infection. In each case the removal of the obvious foci of infection must be seriously considered, but gratifying results from such a procedure, though common with children, are rare with adults. Other cases of chronic nephritis are manifestations of degenerative arterial disease and hypertension. There are undoubtedly examples, perhaps many, where the disease is due to a hypersensitiveness to certain foods. It seems barely possible that still others may result from unrecognized metabolic or endocrine disturbances. Such statements as these are evidence of the futility of attempting at the present time to recommend any specific treatment directed at etiological factors. There are, however, important therapeutic measures to be considered in relation to the general condition of the patient.

It is obviously irrational to treat all cases of chronic nephritis alike. One must be guided by the abnormal physiology presented. One need not be disturbed by the great confusion as to the classification of the nephritides but proceed after he has considered what function or functions of the kidney are abnormal.

In one group of patients the outstanding feature will be a high level of nonprotein nitrogen in the blood and a tendency toward the development of an acidosis and manifestations of uremia. The high nonprotein nitrogen indicates the increased head of pressure necessary to maintain the body in daily nitrogen balance. Part of our treatment aims to reduce the protein metabolism to a minimum. Marked restriction of the protein intake is unwarranted.

Partial protein starvation results in the use of protein from tissue, obviously not an ideal condition in the presence of disease. It is erroneous to think a low utilization of protein by the body will necessarily follow a curtailed protein intake. Complete starvation may be the equivalent of a moderately high protein diet. It is certain that an adequate caloric intake is essential to spare protein in the body. The problem is, therefore, far from solved if one only reduces the protein. That carbohydrate saves protein much better than fat has been demonstrated beyond question. We thus realize that the dietary regimen of these patients must consist in moderately limiting protein and forcing carbohydrate. The latter we consider the more important of the two. The experiments of Whipple on the effect of carbohydrate on various types of acute hepatitis indicate that excessive carbohydrate allows cells better to resist injury. This phenomenon may be of the utmost importance in treating chronic nephritis.

These patients will require at least two-thirds of a gram of protein per kilogram of body weight per day if the caloric intake is adequate. An adult must be allowed a small helping of meat, bacon and two glasses of milk each day. The other foods of the diet will supply additional protein. One to three eggs can be substituted at times for the meat. Specific directions for taking high carbohydrate should be given.

Another function of the kidney is frequently defective in the presence of nitrogen retention, that involving the excretion of acids. It is not uncommon to find an acidosis. When marked this is evidenced by hyperventilation. Under these circumstances alkali is usually beneficial and may be given in the form of fruit and sodium bicarbonate. Perhaps a better procedure is to administer continually 20 to 40 grains of calcium carbonate with each meal. Briggs has emphasized the usefulness of calcium in increasing phosphate excretion by way of the gastro-intestinal tract.

Should we limit salt in the uremic type of nephritis? These patients may not have edema until late, when cardiac failure develops. There are actual disadvantages in limiting salt. Lack of salt may make food so unpalatable we suffer difficulty in getting a patient to take the high calories which are so necessary. Furthermore, these patients even tend to excrete excessive amounts of salt in the urine. One often finds a low concentration of salt in the blood; very low if there has been vomiting. It is not entirely irrational to conclude that these patients as a rule actually need salt. Needless to say, fluids should be forced within reason. The

\* Read before the St. Louis Medical Society, April 4, 1930.

use of saline cathartics or sweating is strongly contraindicated for these procedures tend to weaken and dehydrate patients; simply remove fluids which would better go through the kidneys.

Considerable difficulty may be encountered in attempting to alleviate uremia. Vomiting has usually resulted in starvation and dehydration. The carbohydrate reserves are low. The body has suffered a serious loss of salts. The picture is that of toxemia. Such patients need salt and large amounts of carbohydrate. It seems well to be conservative in administering fluids because edema of the brain is an obscure factor and may be an important part of the uremic state. It is advisable to give physiological saline solution subcutaneously and only concentrated glucose solution intravenously. Sufficient carbohydrate cannot be given parenterally. One should attempt to give 400 to 500 grams a day. A most satisfactory procedure consists in administering thick fluid feedings through a nasal tube. The following mixture is suitable:

Milk	-	-	-	-	-	-	-	1000 cc.
Cream	-	-	-	-	-	-	-	300 cc.
Cornstarch	-	-	-	-	-	-	-	150 grams.
Sugar, Glucose or Karo syrup	-	-	-	-	-	-	-	300 grams.
Salt	-	-	-	-	-	-	-	5 grams.

Make up to 1500 cc. and divide into ten feedings for the twenty-four hours, eight for the day and two for the night. A little heating in a double boiler will produce the desired thickness. Sugar in the mixture is more likely to cause diarrhea than glucose. After a few days, if these feedings are to be continued, four eggs and 200 cc. of tomato juice should be added. A patient who is vomiting will retain a large part of the feedings and the vicious circle may thus be broken.

Patients of the type under discussion may develop an oliguria with marked exacerbation of symptoms. Under these circumstances a striking diuresis and improvement may follow 300 to 500 cc. of 1 per cent magnesium sulphate solution given very slowly intravenously. The diuresis does not start immediately but after a delay of about twelve hours. This same effect has been observed with oliguria associated with so-called surgical kidneys.

Another group of patients will present an entirely different type of abnormal physiology. One refers to those where the ability of the kidneys to excrete salt and water is defective and the prominent feature is edema. There is ample evidence to prove that salt has a definite influence on nephritic edema, and that it is the sodium rather than the chloride which causes the retention of water. The question arises as

to how radically salt should be restricted in treating edema. The question can be answered from actual experience. The average normal individual ingests 8 to 10 grams of salt a day. If he just stops adding salt to the diet this will be reduced 4 to 5 grams. A diet prepared with foods poor in salt may contain only two grams a day. Patients have been studied on the latter while their weight was stationary or gradually falling. Adding only three grams of salt per day resulted in an immediate increase in weight and edema. Although radical restriction of salt will not in itself cause a decided diuresis it removes a factor which definitely inhibits diuresis. Special instruction should, therefore, be given to reduce the salt intake to a minimum.

To what extent should protein be limited in the pure salt water retention type of nephritis? Space prevents a detailed discussion of the protein metabolism of these patients, but it is imperative to emphasize the quantitative aspect of albuminuria. These patients commonly excrete 20 to 30 grams, occasionally 40 to 60 grams of protein in the urine each day. This may even mean a greater protein requirement than normal. It contraindicates a marked limitation of protein. High protein diets have been recommended for these patients and beneficial results have been reported. But the same effect may be obtained in a little different way. The diuresis from high protein is probably due to the diuretic action of the additional urea formed. If equivalent amounts of urea are administered instead of the excess protein certain disadvantages of the high protein are avoided. High protein through its specific dynamic action may conceivably increase metabolism to a degree which would be distinctly detrimental. Since most protein foods contain considerable salt, high protein diets must necessarily contain unwarranted amounts of salt. Urea is not dramatic in its action. To adults one gives 30 to 45 grams a day. One must be prepared for failures for if much urea is retained the patient may even gain weight. The use of urea is, of course, futile in the mixed cases where nitrogen retention and edema are both present.

There are no diuretics to be especially recommended in chronic nephritis with edema. Some effect may be obtained from acidotic chemicals, such as ammonium chloride and ammonium nitrate. The purine diuretics are seldom effective. One feels that the use of mercurial diuretics in chronic nephritis is quite irrational. Although they may act most dramatically there is too much danger of leaving the kidneys in a worse state than they were before. The magnesium sulphate solution discussed above



does not cause a diuresis in edematous types of nephritis.

What can we do of a more general nature with our attention focused on the disease itself rather than on the more evident abnormal physiology? The natural tendency for injured tissues to revert to normal is no doubt present in nephritis. We can aim to give these natural processes the most favorable opportunity to function. This is not accomplished by marked dietary restrictions. One should probably spend more time in telling the patient what to eat than what not to eat. One must be sure his patient is getting adequate calories, biologically good protein, calcium in milk, iron, his allotment of vitamins—to aim toward perfect nutrition. At the present time the most important suggestion to make is not to fail to *feed* the patient with chronic nephritis.

#### SEROLOGIC STUDIES

Interpretation of positivity as used in the percentages and results presented by Mary C. McIntyre and Robert L. Gilman, Philadelphia (*Journal A. M. A.*, Aug. 3, 1929), is a Kolmer-Wassermann reading of 33,000 or above and a Kahn reaction of 244 or above. The Kolmer modification of the Wassermann test and the Kahn test were performed on identical serums in 1,767 tests, showing 83.3 per cent agreement in proved syphilitic cases and 96.7 per cent agreement in proved nonsyphilitic cases. Disagreement in proved syphilis between the two tests amounted to 16.7 per cent, of which 12.9 per cent were positive with the Kolmer-Wassermann test and 3.8 per cent were positive with the Kahn test. Disagreement in nonsyphilitic cases was 3.3 per cent, the Kolmer-Wassermann test being positive in 0.4 per cent and the Kahn in 2.9 per cent. In twenty-one cases of early untreated syphilis, the Kolmer-Wassermann test was positive in each instance; the Kahn test was completely positive in fourteen, partially positive in six and negative in one. Treatment would appear to account for the author's percentages of positive reactions in proved syphilis. They believe with Kahn that the simplicity of the Kahn test is overemphasized and that it needs exactness in reagents and technic. According to their results, the Kolmer test yielded the higher percentage of true positive reactions in syphilis and the lower percentage of probable nonsyphilitic reactions in the controls. Sufficient evidence is not on hand to warrant the supplanting of one test by the other, and the clinician and his patient are best served by the performance of both tests.

#### ANTISCORBUTIC VITAMIN CONTENT OF MILK OF STALL-FED COWS THROUGHOUT YEAR

The milk from a herd of stall-fed cows was tested by Florence L. MacLeod, New York (*Journal A. M. A.*, June 18, 1927), for an entire year to determine its antiscorbatic potency. The greater antiscorbatic value of the milk of the pasture-fed cow is doubtless due to the antiscorbatic vitamin content of the fresh grasses which the animal receives, since the animal body probably does not synthesize this vitamin and is therefore dependent on its food to provide an adequate amount of it in its milk. Ensilage being the principal source of the antiscorbatic vitamin in the ration of the stall-fed cows, it ap-

peared possible that animals fed an ensilage of good quality might produce a milk of high antiscorbatic value. Guinea-pigs were used in the experimental work. It is concluded from this investigation that 50 cc. of the milk used in these experiments, fed six days a week, is sufficient to protect a 300 Gm. guinea-pig from scurvy at any time of the year. As a result of this work it can be concluded also that the milk of stall-fed cows which are given a well balanced, uniform diet throughout the year will not show seasonal variation in its antiscorbatic value. By including an ensilage of good quality in the ration, the antiscorbatic potency of the milk may be maintained at a high level. Hess estimates that an infant requires five times as much vitamin C as a guinea-pig for protection against scurvy. On the basis of this estimate and these experimental results, it would seem safe to conclude that raw milk from cows fed as described will furnish sufficient antiscorbatic vitamin to protect an infant from scurvy.

#### WHEN SUPERSTITION GRASPS A MIND

There seems to be such a thing as a superstitious temperament, declares John Lee Maddox in a discussion of superstitions, ancient and modern, in the January issue of *Hygeia*. When a person has this kind of temperament, mental acumen and education count for nothing.

Dr. Samuel Johnson with his ponderous intellect and splendid culture believed that he would have bad luck unless he touched every pole and post as he walked along a street or road. John Henry Newman, who possessed as subtle a mind and as thorough an education as any man of the nineteenth century, nevertheless believed that all the pieces of wood in the churches of Europe alleged to be parts of the cross of Christ are authentic—probably like the loaves and fishes, multiplied by divine power.

#### GASTRIC MANIFESTATIONS ASSOCIATED WITH A SPASTIC COLON

It is generally recognized that the symptoms of recurring epigastric pain, nausea and vomiting which are usually part of the clinical picture of gastric disease may sometimes be associated with more distant lesions, such as chronic infections of the gall-bladder and of the appendix. It is not so generally appreciated, however, that the same symptoms are also commonly associated with a chronic spastic condition of the colon. The type of pain under discussion by Fred M. Smith, G. H. Miller and W. M. Fowler, Iowa City (*Jour. A. M. A.*, Dec. 21, 1929), is localized in the epigastrium and often to the right and above the umbilicus. It may occur at intervals of from one to three hours after meals and is described as a sensation of fullness, burning or gnawing or a cramplike distress. These features of the discomfort resemble closely those of a peptic ulcer. They are, however, invariably associated with bowel symptoms, such as a feeling of fullness or even cramps over the lower part of the abdomen and the consciousness of gas. This distress is furthermore not always relieved by the taking of food or of sodium bicarbonate except when the latter is followed by the eructation of gases. It is relieved by the passage of gas by bowel and by bowel movement. It is intensified by any aggravation of the bowel condition and is most prominent when the stools are scybalous or pencil-like in character. It may be experimentally induced by the distention of the stomach with air or by inflation of the colon. Three cases are reported.

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SEPTEMBER, 1930

## EDITORIALS

### BABY IDENTIFICATION

When an event occurs in any part of the country of such nature as to make the front page of metropolitan newspapers for several days the mind naturally turns to the possibility of the same thing occurring in our immediate locality, especially if the incident is one that might happen to any person placed in similar circumstances. Such an occasion was the report of a possible exchange of babies in a Chicago hospital which focused attention on hospitals all over the country.

After a survey of identification procedure in St. Louis hospitals authorities are united in declaring that there is but the remotest chance of a switching incident such as that reported to have occurred in Chicago. Dr. Max C. Starkloff, health commissioner at St. Louis for thirty-five years, says, "I have yet to hear of a baby mix-up in St. Louis, and the strict means of identification employed practically obviate the possibility of a mother getting the wrong baby."

An elaborate system of checks and counter checks, said to represent the last word in baby identification methods, is used in St. Louis Maternity Hospital. Before the baby is taken from the delivery room a bracelet of beads, each bead bearing black letters that spell the baby's last name, is placed on the baby's wrist. If twins are to be recorded, the letter "A" precedes one name, "B" the other. In addition to the bead bracelet a linen tape bearing a serial number is sewed about the other wrist.

A baby Bertillon room is maintained where records are taken of footprints which are said to hold true for life. An inked roller is applied to the feet of the infant, then to a blotter. The footprints are stamped on the bottom of the chart which also chronicles such details as weight and rate of growth. The crib is also marked. No identification tag is allowed to be

removed until the baby is in the arms of the mother ready to leave the hospital.

Other St. Louis hospitals vary the means of identification, as by using a necklace instead of a bracelet. In one hospital the baby never leaves the mother's room but nevertheless the infant wears his identification tag.

"The identification tags guide us," remarked one nurse, "but the mothers recognize their babies as soon as the cart appears at the head of the ward. How they pick out their own when yards away is hard to say, but they do it every time."

But should a mother become confused, proof is there, from footprints to necklaces and numerous records.

In Kansas City similar elaborate precautions are taken by all first-class hospitals and authorities there declare it is practically impossible for babies to be switched. The investigation discloses also that the hospitals in St. Joseph, Springfield, Joplin, and other towns where several babies are apt to be born on one day, have established precautions to obviate the possibility of a mistake in giving a baby to its rightful mother.

With the view of further safeguarding against the possible switching of babies, the Chicago Medical Society has appointed a committee to draft legislation providing a standard system of marking new-born children at hospitals. With the appointing of the committee, Dr. John R. Harger, president-elect of the society, said that while all the hospitals have marking systems there was need for a uniform plan which would include the signatures of two witnesses in legal form.

One prominent obstetrician has suggested that physicians and others in the delivery rooms exercise great caution in conversation while the mother is under the anesthetic. He mentioned the instance of a patient partially anesthetized who heard and remembered the word "boy" mentioned by the attendants but did not hear or remember the rest of the conversation. When this patient was presented with a girl baby she objected strenuously to the "substitution," declaring that she heard the attendants say her baby was a boy.

### SHOULDER BLADE AS INDEX TO HEALTH

Type of shoulder blade is an indication of general health and resistance, is the conclusion of Dr. W. W. Graves, professor of neuropsychiatry in St. Louis University. Dr. Graves has recently returned to St. Louis after a year's leave of absence which he devoted to research work in other institutions. He began this re-



search in 1906, when his attention was attracted by the peculiar shape of the shoulder blades of a mother and three children in the neurological clinic of St. Louis University. In the last twenty-five years, Dr. Graves has collected statistics on shoulder blades of approximately 60,000 persons and has classified them into concave, convex and straight types.

He has drawn the following conclusions: (1) Shoulder blade types are common to all human stocks; (2) the type of an individual shoulder blade develops before birth and remains unchanged; (3) the type of shoulder blade is transmitted from generation to generation; (4) each type discloses an age incidence, children under 15 years showing 65 per cent straight or concave and persons over 70 showing 35 per cent concave. He draws the conclusion from this last figure that possessors of convex shoulder blades have a greater tenacity for life, and ill health occurs more often in persons having concave type. He quotes the following figures to strengthen this conclusion: Of 1333 patients in one Missouri state hospital, 83.7 per cent of the patients between 20 and 29 years of age had straight or concave-shaped shoulder blades; of those over 70 years of age, 42.6 per cent were the same type. Of 233 medical students between the ages of 20 and 30 years 52.8 per cent were concave or straight shoulder blade types, while in the same number of feeble-minded persons of the same age the percentage was 73.9; in 381 prisoners between 20 and 30 years of age the percentage was 79; in 250 insane patients between 20 and 30 years of age the percentage was 77.6; in 270 prostitutes between 20 and 35 years of age, it was 82 per cent; in 867 army applicants between the ages of 20 and 35 it was 52 per cent; and in 1000 returned overseas men between 25 and 39 years of age, having pulmonary tuberculosis, the percentage of concave and straight was 73.

#### ASSOCIATION FOR THE STUDY OF GOITER

The annual meeting of the American Association for the Study of Goiter was held in Seattle, Washington, July 10, 11 and 12. The meeting was most satisfactory and was attended by about two hundred and fifty physicians. Of this number quite a few were from Canada.

This organization has had a rather meteoric career. It was begun at a time when there were already in the field too many organizations in the special branches of medicine and surgery and it was a question whether a new group could be satisfactorily organized and be a success. It was believed that until comparatively recently the study of goiter had been generally neglected in this country. As the

disease was becoming common among us there was a wide interest shown in thyroid diseases and it was thought best to start such an organization.

The result has been unusual. The interest shown has been due to unusually varied and fascinating programs put on by the best recognized men interested in the field of thyroid disease. All branches of medicine have been linked together in this effort, so it was nothing out of the ordinary to have such a large attendance at this more or less distant Northwestern meeting. Each year the organization has grown in importance. Next year the meeting will come to Kansas City, and we believe and hope our colleagues of the West and Southwest will have access to one of the most instructive programs which they will have an opportunity to hear during the coming year.

The most outstanding event of the meeting this year was the awarding of the Society prize of \$300 and a medal for the best original research work of the year. The prize and medal were given to Dr. William F. Rienhoff, Jr., of Baltimore, Maryland, for his work on the minute anatomy of the normal thyroid gland and of goiter. There were many papers submitted and all were excellent contributions, but the work of the winner was so outstanding as to cause tremendously favorable comment on the ingenuity and minuteness of the work, as well as the interesting way in which the author published his results. A prize will be awarded yearly by the Society.

Dr. Kerwin W. Kinard, Kansas City, was installed as president for 1930-1931.

Notices will appear in *THE JOURNAL* from time to time as to the date of the Kansas City meeting, which will probably be early in March or April, 1931.

The papers read at the Seattle meeting will be grouped in the Society proceedings and will be sold as transactions of the Society. They will be available through Dr. J. R. Yung, Terre Haute, Indiana, or Dr. J. Tate Mason, Seattle, Washington.

#### MEETING OF MISSOURI TUBERCULOSIS ASSOCIATION

The twenty-third annual meeting of the Missouri Tuberculosis Association will be held in St. Louis, September 22, 23 and 24, 1930.

The annual meetings of the Missouri Tuberculosis Association in the past have attracted increasing interest of the medical profession, both within and outside the state. The last meeting, held in Jefferson City, gave a most attractive medical program and was well attended.

The program this year has been extended to

include the Missouri Social Hygiene Association and the Missouri Mental Hygiene Association. Missouri physicians can ill afford to miss the important presentations that will be offered at this session.

The tentative program in which the medical profession will be interested includes contributions by Dr. Max C. Starkloff, health commissioner of St. Louis; Mr. Robert W. Kelso, director, Community Fund, St. Louis; Drs. J. J. Singer, J. W. Larimore, Evarts Graham, Ralph L. Ehrlich, George D. Kettelkamp, Howard H. Bell, George S. Wilson, Duff Allen, Rueben Stone, Andrew C. Henske, L. C. Boisliniere, H. I. Spector, Alphonse McMahon, and Julius A. Rossen, all of St. Louis.

A nonclinical session on the morning of September 23 will be devoted to tuberculosis problems in Missouri. In the evening a general meeting will be held at the St. Louis Medical Society building, Dr. Vilray P. Blair, president of the St. Louis Medical Society, presiding. At this session Dr. Stuart Pritchard, Battle Creek, Michigan, will speak on some important phases of tuberculosis. Prominent speakers will represent the Missouri Social Hygiene Association and the Missouri Mental Hygiene Association.

The importance of this program will be appreciated by every practicing physician and the Missouri Tuberculosis Association will be immensely gratified by a large attendance from all counties in the state.

#### ST. LOUIS MUNICIPAL HOSPITALS OVERCROWDED

Practically all municipal eleemosynary institutions in St. Louis have been filled to capacity and some have had waiting lists during the last year, according to the annual report made by Dr. Curtis H. Lohr, hospital commissioner of St. Louis, to Director of Public Welfare Salisbury. The report shows that absolute capacity has been reached at Robert Koch Hospital, City Infirmary, City Sanitarium and City Hospital No. 2 (for Negroes).

The report shows that 2,256,285 days of hospital treatment were given last year and 2,152,894 the previous year. With 110 insane patients transferred to state hospitals, the City Sanitarium is still housing 3330 patients in a building originally designed to accommodate 2306.

The City Hospital has been accepting tuberculous patients who, though in need of hospitalization, have necessarily been placed on a waiting list by Koch Hospital. The daily average number of patients in Koch Hospital increased from 413 in 1928, to 478 during 1929, and at present has a waiting list.

The daily average number of patients at the City Hospital decreased from 759 in 1928-1929, to 733 in 1929-1930. In City Hospital No. 2 the average rose from 263 to 290 and one day's census showed 355. At the City Sanitarium the daily average number of patients increased from 3171 to 3255. The number of patients at the Isolation Hospital has been below average. The City Infirmary had an increase from 781 to 844, with 900 inmates at the present time and there is a waiting list.

#### NEWS NOTES

Dr. and Mrs. R. C. Harris, St. Louis, sailed August 16 for Europe. Dr. Harris will attend clinics in Vienna and Berlin. After finishing his studies they will join friends in Switzerland, returning to St. Louis late in the fall.

Invitations have been sent to 10,000 physicians, surgeons and radiologists to attend a postgraduate cancer class at Johns Hopkins University, September 15, 16 and 17. The invitations were issued from the Garvin Experimental Laboratory and the Copley Surgical Pathological Laboratory at Johns Hopkins.

A fund of \$107,000 to be used for an addition to an "orthodox Jewish hospital or orphans' home in St. Louis or St. Louis County" was provided by the will of Mrs. Pauline Epstein. The will states that the addition is to be called the "Burenstein Memorial Wing," and names six persons to constitute a board which will have final choice of a beneficiary.

The annual meeting and banquet of the Ensworth-Central-Northwestern Alumni Association will be held in St. Joseph, the location of these former colleges, during the week of the Kansas City Fall Clinical Conference, October 6 to 10. Dr. Leroi Beck, assistant secretary, King Hill Building, St. Joseph, will furnish any additional information.

Dr. Robert F. Hyland, St. Louis, chief surgeon of the St. Louis Public Service Company, completed twenty years of service with the company, July 1. He has been chief surgeon since 1913. A well-equipped clinic is maintained by the company where medical attention is given employees and members of their families and some operations are performed. In addition to company activities Dr. Hyland is medical adviser to the St. Louis American and St. Louis National baseball teams. Dr. Hyland is a graduate of the St. Louis University School of Medicine.



We learn from *Science* that Dr. Elias P. Lyon, Minneapolis, dean of the University of Minnesota Medical School, formerly dean of the St. Louis University School of Medicine, was recently awarded the degree of doctor of science by the University of Southern California.

The United States Civil Service Commission announces open competitive examination for senior medical officer (pathology) and associate medical officer (pathology). Applications must be filed with the Civil Service Commission at Washington, D. C., not later than September 24, 1930. The examinations are to fill vacancies in the United States Public Health Service. Competitors will not be required to report for written examination at any place, but will be rated on their education, training and experience. Full information may be obtained from the Civil Service Commission at Washington, D. C., or from the Civil Service Board at the postoffice or customhouse in any city.

At the recent annual meeting of the National Board of Medical Examiners, the following officers were elected: Dr. Waller S. Leathers, Nashville, president; Everett S. Elwood, executive secretary; and Dr. J. S. Rodman, Philadelphia, medical secretary. Eight new members, elected for terms of six years each, are: Drs. T. J. Crowe, Dallas, Texas; J. Gurney Taylor, Milwaukee; J. H. J. Upham, Columbus; Charles A. Elliott, Chicago; William DeB. MacNider, Chapel Hill, North Carolina; Walter W. Palmer, New York City; E. D. Plass, Iowa City; and Charles R. Stockard, New York City.

The number of members of the Board was increased from twenty-one to twenty-seven. The Board is composed of the following: the surgeon generals of the United States Army, the Navy and the Public Health Service and one representative each from the medical corps of these services; five representatives from state boards of medical examiners; two from the Council on Medical Education and Hospitals of the American Medical Association; two from the Association of American Medical Colleges; and twelve elected at large. Forty states, including Missouri, and Hawaii, Porto Rico and the Canal Zone, recognize the National Board's certificate and partial recognition is given by England, Scotland, Ireland, and Spain. The reports of the officers of the Board show an increase of approximately 10 per cent in the number of candidates taking the examinations during the last year as compared to the year previous.

Dr. and Mrs. T. O. Klingner and daughter, Mary Elizabeth, of Springfield, recently returned from an extended vacation in Alaska, Yukon territory and the Canadian Rockies.

Dr. Val B. Satterfield, St. Louis, has accepted the invitation of Yale University to become a member of the Institute of Human Relations, New Haven, Connecticut. He began his new duties August 1.

Dr. B. F. Carr, Polo, was honored July 31 at a celebration of the completion of fifty years in the practice of medicine. All but five years of this time Dr. Carr practiced in Polo, this five-year period being spent in the Indian Service. Dr. Carr graduated from the medical department of the University of Missouri in 1880.

Thirty-five persons attended the luncheon and reception given in his honor immediately following a meeting of the Caldwell County Medical Society.

Dr. Tinsley Brown, Hamilton, a lifelong friend, commended Dr. Carr's work and compared medicine today to that of the period in which both he and Dr. Carr began practicing. Dr. G. S. Dowell, Braymer, presented a fountain pen to Dr. Carr as a token of the Society's esteem.

Three Missouri men will deliver addresses at the International Assembly of the Interstate Postgraduate Medical Association of North America, in Minneapolis, Minnesota, October 20 to 24. Dr. David P. Barr, St. Louis, professor of medicine, Washington University School of Medicine, will speak on "The Significance of Jaundice." Dr. Otto H. Schwarz, St. Louis, professor of obstetrics and gynecology, Washington University School of Medicine, will give an address on "The Composition of the Blood in Pregnancy with Special Relation to the Calcium Content." Dr. Elsworth S. Smith, St. Louis, professor of clinical medicine, Washington University School of Medicine, will speak on "The Treatment of Essential Hypertension." Dr. Barr and Dr. Smith will also conduct medical diagnostic clinics.

The program presents a wide variety of subjects to be discussed by contributions from more than a hundred outstanding representatives of the profession throughout the country and several eminent physicians from foreign countries.

Dr. W. D. Haggard, Nashville, is president of the association; Dr. W. B. Peck, Freeport, Illinois, is managing director; and Dr. Edward Henes, Jr., Milwaukee, is executive secretary.

Dr. Harvey S. McKay, St. Louis, was elected president of the Baltimore and Ohio Railway Surgeons' Association at their annual session held in Pittsburgh, June 4 to 6.

On August 1, the United States Department of Agriculture definitely designated the State of Michigan as a "modified accredited" area, signifying that all cattle herds in Michigan are practically free from tuberculosis. This is the third state to attain such distinction, Maine having been qualified in March, 1929, and North Carolina in October, 1928. Michigan's accrediting followed the dismissal of a case filed by an Ionia County cattle owner in which the circuit judge sustained the right of public authorities to test, condemn, appraise and slaughter privately owned cattle in the campaign to eradicate bovine tuberculosis. All other counties in Michigan had met the official requirements for accrediting.

The incorporation of the Radiological Research Institute was announced July 24 by Dr. Edwin C. Ernst, St. Louis, president of the organization. One of the first objectives will be the production of X-ray tubes of a power now unavailable in order that deeper penetration and faster action can be obtained. Other objects of the society are cheaper radium, American control of its own radium supply, establishing a central radiological research laboratory, fostering pure radiological research in colleges, cooperating with the National Institute of Health created by Congress, and establishing an advisory board of fifty scientists to extend the practical application of X-ray research to all walks of life. There are nineteen original members of the Institute.

A contract, representing an expenditure of more than \$291,000 for 5,735 milligrams of radium and accessory equipment to be delivered to the State Institute for the Study of Malignant Diseases at Buffalo, New York, was recently signed by Dr. Thomas Parran, Jr., state commissioner of health of New York. Certificates of the United States Bureau of Standards attesting the quantity of radium element will be delivered with the material. The purchase was made possible by an appropriation of \$300,000 for the purpose authorized by the state legislature at its last session. With the acquisition of this additional radium, the Institute, so far as is known, will possess the largest single supply in the world. The State Institute for the Study of Malignant Diseases is under the supervision and control of the State Department of Health and was created for the purpose of conducting investigations

into the cause, nature, mortality rate, treatment, prevention and cure of cancer and allied diseases. The Institute is authorized to receive cases of cancer and allied diseases free of charge. There are records of over 800 cured cases of malignant disease in the Institute files.

The Forty-Third annual meeting of the Missouri Valley Medical Society will be held in Des Moines, Iowa, October 15, 16 and 17, with headquarters at the Fort Des Moines Hotel. On the program are Drs. C. B. Francisco, Earl C. Padgett, and P. T. Bohan, all of Kansas City, Missouri, and members of the faculty of the Kansas University Medical School; and Willard Bartlett, St. Louis, Washington University School of Medicine. Among others scheduled to address the meeting are Drs. Joseph C. Bloodgood, Johns Hopkins University; J. H. Musser, Tulane University; Russell M. Wilder, Chicago University; Laurence H. Mayes and Loyal Davis, Northwestern University; E. Starr Judd, Mayo Clinic; Horace M. Korn, F. R. Peterson and Julian D. Boyd, University of Iowa Medical School; Abbott M. Dean and Aldis A. Johnson, Council Bluffs; J. B. Potts and F. Lowell Dunn, Nebraska University Medical School; John R. Kleyla and James F. Kelly, Creighton University Medical School; and Walter L. Biering and N. Boyd Anderson, Des Moines. Dr. E. H. Skinner, Kansas City, is president-elect. The final program will be ready for distribution about October 1 and may be obtained from the secretary, Dr. J. D. McCarthy, Omaha, Nebraska.

Approximately 15,000 persons inspected the new De Paul Hospital, Kingshighway at Wabada street, St. Louis, in the first three days it was open for inspection. The dedication services were held August 15, culminating more than a century of hospital service in St. Louis by the Daughters of Charity of St. Vincent de Paul whose project the hospital is. The hospital includes a seven-story main building with 350,000 feet of floor space, a five-story infirmary, Sister House for fifty members of the order, and a chapel with seating capacity for 350. The hospital is the outgrowth of a small log house containing two rooms and a kitchen located at Fourth and Spruce streets in which in 1828 four Sisters of Charity began the first hospital work done in Missouri. In 1832 a new building was completed on the same site and additions were made until 1874 when the Sisters erected the Mullanphy Hospital on Montgomery street near Grand Avenue at a cost of \$150,000.

The main hospital building of the new



structure is constructed in the form of an H giving the maximum amount of air and light to every room. The first floor consists of the clinic department occupying the entire north wing, quarters for interns and chaplain are in the south wing and the administrative offices are in the center. Rooms for patients are designed to accommodate all classes from elaborate private suites to complete ward service. The fourth floor is designed for the restriction of violent cases. The sixth floor is the maternity department and major and minor operating rooms are on the seventh floor. Patients with ordinary conditions are placed on the second, third and fifth floors. Each floor has spacious outside porches and sun and sitting rooms. Special attention has been given to the interior decorating and to landscaping.

Patients were moved from the Mullanphy Hospital about September 1 when the new hospital was opened.

The ninth annual convention of the American Congress of Physical Therapy will be held in St. Louis, September 8 to 11, with headquarters at the Hotel Jefferson. Physicians and surgeons from all parts of the United States and several European countries will attend.

Among St. Louis physicians who will address the meeting are Drs. J. J. Singer, G. D. Kettlekamp, Lee D. Cady, David Barr, George Gellhorn, Cleveland H. Shutt, Bransford Lewis, Grayson Carroll, H. W. Soper, Warren R. Rainey and Louis H. Jorstad. Among other speakers on the program are Dr. Norman E. Titus, president of the congress and head of the department of physical therapy at Columbia University and the Presbyterian Hospital, New York City; Dr. Max Thorek, surgeon in chief of the American Hospital of Chicago; Dr. Charles E. Stewart, Battle Creek; Dr. Willis S. Peck, Ann Arbor; Dr. William Wallace Walker, Baltimore; Dr. L. S. Brookhart, Cleveland; Dr. Edward H. Trowbridge, Worcester, Massachusetts; Dr. Heinrich F. Wolf, New York City; Dr. Gabriel Tucker, Philadelphia; Dr. A. R. Hollender, Chicago; C. I. Reed, University of Illinois; H. B. Kellogg and W. F. Windle, Northwestern University.

Much of the program will be postgraduate instruction on physical therapy methods with daily clinics and a series of instruction classes.

Dr. Norman E. Titus, New York, is president; Dr. F. H. Ewerhardt, St. Louis, is first vice president; and Dr. F. L. Wahrer, Marshalltown, Iowa, secretary. Dr. F. H. Ewerhardt is the St. Louis member of the committee on arrangements. The other members of the committee are Dr. A. R. Hollender,

chairman, and Miss Lucille White, secretary, of Chicago.

The following articles have been accepted for New and Nonofficial Remedies:

Carel Laboratories

Alpha—Naphco

Maltbie Chemical Co.

Ephedrine Nasal Jelly—Maltbie

Mead Johnson & Co.

Mead's 5 D Cod Liver Oil with Viosterol  
Merck & Co., Inc.

Pyridium

Aqueous Solution of Pyridium, 1 per cent  
Pyridium Tablets, 0.1 Gm.

Pyridium Ointment, 10 per cent

H. A. Metz Laboratories, Inc.

Elixir of Pyramidon

Pyramidon Tablets, 1½ grains

National Drug Co.

Ragweed Pollen Antigen—National

Timothy Pollen Antigen—National

Parke, Davis & Co.

Ephedrine Hydrochloride—P. D. & Co.

Capsules Ephedrine Hydrochloride—P. D.  
& Co., ¾ grain

Capsules Ephedrine Hydrochloride—P. D.  
& Co., ¾ grain

Thio—Bismol

Ampoules of Thio—Bismol

Pitman—Moore Co.

Siomine

Siomine Capsules, ½ grain.

Siomine Capsules, 1 grain

Siomine Capsules, 2 grains

Siomine Capsules, 5 grains

G. D. Searle & Co.

Ampules Mercurochrome—H. W. & D., 1%.  
10 c.c.+

Ampules Mercurochrome—H. W. & D., 1%.  
20 c.c.+

Nonproprietary Article

Alphanaphthol

Aces Laboratory, Inc.

Mercurochrome Suppositories Aces

Cutter Laboratory

Diphtheria Toxoid—Cutter, 45 c.c. vial

Hoffman—LaRoche, Inc.

Synthetic Thyroxine

Ampuls Synthetic Thyroxine—Roche,  
1.1 c.c.

Solution Synthetic Thyroxine—Roche

Tablets Synthetic Thyroxine—Roche, 1  
mg.

Winthrop Chemical Co.

Mesuroil

Ampules Emulsion Mesuroil, 20 per cent,  
1 c.c.

Theocin

Tablets Theocin, 1½ grains.

## OBITUARY

### SAMUEL CATLETT JAMES, M.D.

Dr. Samuel C. James, Gulfport, Mississippi, a graduate of Rush Medical College, Chicago, 1882, died at the home of his son, Dr. Percy B. James, Kansas City, February 2, aged 76.

Another link between the pioneers and the present generation of Kansas City physicians has been broken by the passing of Dr. James.

He was born in Franklin County, Virginia, in 1854. He received his preliminary education at the Illinois State Normal School at Girard, Illinois, after which he entered Rush Medical College, graduating in 1882. Coming to Missouri he opened an office at Versailles, but soon afterwards moved to Holden, where he practiced several years. After a course at the New York Polyclinic he came to Kansas City seeking a larger field, and soon was well established as a successful practitioner.

Dr. James was a member of the Jackson County Medical Society for many years, and in 1924 was elected an Honor Member. He was also a member of the Kansas City Academy of Medicine and the Southwest Medical Society, and a Fellow of the American Medical Association. In 1928 he was elected an Affiliate Fellow of the American Medical Association. At one time he was a member of the Missouri State Board of Health. He was a professor of medicine in the University Medical College until that institution passed out of existence.

About six years ago Dr. James was obliged to submit to a major operation from which his recovery was tedious and which accentuated a cardiovascular weakness that prevented his return to active practice. He spent most of the last few years at Gulfport, Mississippi.

Dr. James' kindly, jovial disposition made him many friends in and out of the profession and he will long be remembered, especially by the many students who graduated from the institution of which he was dean for many years.

ROBERT T. SLOAN, M.D., in the *Bulletin*  
of Jackson County Medical Society.

### ALONZO ROUSE KIEFFER, M.D.

Dr. Alonzo R. Kieffer, St. Louis, a graduate of Missouri Medical College (now Washington University School of Medicine), 1879, died at his home August 13 of heart disease, aged 75.

After receiving his medical degree Dr. Kieffer went to Cole Camp, Benton County, Missouri, where he practiced for thirteen years. In 1882 he moved to St. Louis and conducted

a very successful practice in that city during the rest of his life. He was actively engaged in his work until within a few days of his death.

Soon after locating in St. Louis he became identified with the Barnes Medical College and the institutions growing out of it—the Barnes University and the medical department of the National University of Arts and Sciences—in which he filled the chair of clinical surgery with special reference to surgical diseases of women. He held this connection for twenty-six years and until the school closed in 1918. In this work he naturally was brought in contact with many young practitioners and never failed to extend his assistance and encouragement to them.

Dr. Kieffer was active in the medical organization, joining the St. Louis Medical Society soon after establishing his residence in St. Louis. He became treasurer of the St. Louis Medical Society in 1896, a position which he held for seven years. It was while serving as treasurer of the St. Louis Medical Society that he conceived a plan for the Society to acquire ground belonging to the St. Louis Medical Library Association and the erection of a building for the Society's home. This was accomplished in 1906. In 1903 Dr. Kieffer was elected president of the St. Louis Medical Society and in 1908 he was honored with the presidency of the State Medical Association.

Dr. Kieffer was one of thirteen physicians with records of a half century or more of practice who were honored at a golden jubilee celebration of the St. Louis Medical Society in November, 1929. On April 22, 1930, a bronze plaque bearing Dr. Kieffer's profile and recording facts of his career was presented to the Medical Society.

Dr. Kieffer is survived by his widow and six children. Two sons, Dr. Victor B. Kieffer and Dr. R. S. Kieffer, practice medicine in St. Louis.

### FRANK STANFIELD DUNHAM, M.D.

Dr. Frank S. Dunham, Kansas City, a graduate of Eclectic Medical College, Cincinnati, 1893, died of myocarditis and diabetes mellitus, January 27, aged 62.

Dr. Dunham was born at Ninevah, Indiana, March 27, 1868. At the age of 10 he moved with his parents to Lincoln, Illinois, where he finished high school. Six years later he moved to Nebraska and attended the State University at Lincoln.

He studied medicine with Dr. F. J. Rosenberg, at Lexington, Nebraska, and graduated from the Eclectic Medical Institute of Cincinnati, Ohio, June 6, 1893.

He began the practice of medicine at Sum-



ner, Nebraska, in August of the following year, but in September, 1894, he located at Monett, Missouri, where he practiced for three years, returning to Nebraska in 1897, and locating at Cozad, where he remained for twelve years. In 1910 he removed to Omaha, Nebraska, and practiced until 1927, when he came to Kansas City, Missouri, locating at 3848 Prospect.

In 1906 he took a postgraduate course at Rush Medical College, Chicago, in diseases of the eye, ear, nose and throat, and in the year 1928 he attended clinics at the Presbyterian Hospital and the Cook County Hospital of Chicago.

Seventeen years ago he developed diabetes and on two different occasions was in a hospital in Nebraska for treatment.

January 13, 1930, he entered the St. Joseph's Hospital, Kansas City, Missouri, where he died January 27, 1930, of myocarditis.

He was a member of the Linwood Boulevard Methodist Episcopal Church, and of the Jackson County Medical Society, and American Medical Association.

He is survived by his widow, Mrs. Effie Robbins Dunham; his daughters, Mrs. M. F. Thompson, Kansas City, and Miss Mildred L. Dunham, Chicago, and two sons, Rev. C. Stanfield Dunham, Duluth, Minnesota, and Frank R. Dunham, Kansas City.

#### HEALTHFUL HABITS MEAN GOOD LOOKS

Girls can be persuaded to adopt health habits by the good looks appeal more effectively than by any other argument, declares Theresa Dansdill, North Carolina tuberculosis worker, in an article in the September issue of *Hygeia*.

Laboratory research proves that milk, fruits and fresh vegetables, especially green ones, help to give a clear skin, glossy hair and prettier nails. Restful sleep and relaxation noticeably improve the appearance. Neurologists tell us without reservation that the nerve strain coming from too little sleep, inadequate food and other bad health habits help to make a muddy skin, shaggy hair and dull eyes.

Just as soon as girls can be led to see that their skin, hair, eyes and disposition are finer when they are near their normal weight, they will eat the right foods and sleep long hours cheerfully, Miss Dansdill has found.

#### YALE SCHOOL OF MEDICINE TO STUDY TEETH

By means of a grant from the Rockefeller Foundation the first comprehensive investigation by medical specialists of the role played by the teeth in disease and health will be made by the Yale School of Medicine. The ultimate purpose is to create a group of medical specialists in teeth, just as there are medical specialists in diseases of the other organs of the body. In addition to concentrating upon the natural history of teeth, causes of the diseases of teeth, and the relation of these diseases to general body conditions, attention will also be given to the development of operative procedure more in accordance with modern knowledge of surgery.—*The Diplomat*.

## SOCIETY PROCEEDINGS

### COUNTY SOCIETY HONOR ROLL FOR 1930

(UNDER THIS HEAD WE LIST SOCIETIES WHICH  
HAVE PAID DUES FOR ALL THEIR MEMBERS)

#### HONOR ROLL

Mercer County Medical Society, December 12, 1929.

Madison County Medical Society, December 16, 1929.

Benton County Medical Society, January 8, 1930.

Pulaski County Medical Society, January 11, 1930.

Webster County Medical Society, January 24, 1930.

Chariton County Medical Society, January 27, 1930.

Ralls County Medical Society, March 6, 1930.

Camden County Medical Society, March 10, 1930.

Dent County Medical Society, April 2, 1930.

Schuyler County Medical Society, April 5, 1930.

Platte County Medical Society, April 7, 1930.

Christian County Medical Society, April 7, 1930.

Macon County Medical Society, April 12, 1930.

Miller County Medical Society, April 14, 1930.

Phelps County Medical Society, April 25, 1930.

Atchison County Medical Society, April 30, 1930.

Lafayette County Medical Society, May 9, 1930.

St. Louis County Medical Society, August 26, 1930.

#### CALDWELL COUNTY MEDICAL SOCIETY

The Caldwell County Medical Society met in Polo, July 31, at 2:30 p. m. in the Methodist Episcopal Church. Those present were: Drs. G. S. Dowell and H. H. Patterson, of Braymer; Tinsley Brown, Hamilton; B. F. Carr, T. W. Scanlon and C. E. Wilbur, of Polo; W. S. Shouse, Kingston. Visitors were: Drs. Spence Redman, Platte City, Councilor for the 12th District; Austin Carr and Donald Dowell, of Kansas City; Drs. Smoot and Mount, dentists, of Polo.

The minutes of the meeting held at Breckenridge, September 22, 1929, were read and approved. On account of sickness and inclement weather no meetings had been held since that time.

An interesting case of Raynaud's disease was reported and discussed. The patient was a middle-aged man with both feet affected. He had lost one toe of the left foot and apparently will lose one toe of the right foot. Family history was negative except that his father died of heart disease. Blood count and Wassermann were negative.

Many other case reports were given and discussed. Dr. Spence Redman, Platte City, Councilor for

the 12th District, talked on the conditions of the Societies in his district.

The Society extended Dr. Redman a vote of thanks for his presence and remarks.

The meeting adjourned to meet in Braymer in September.

Following adjournment the members and their friends were escorted to the dining room of the church where a sumptuous lunch was spread in honor of Dr. B. F. Carr, Polo, who has just completed his fiftieth year in the practice of medicine. He graduated from the medical department of the University of Missouri in 1880. He has practiced all this time at Polo except for about five years when he was in the Indian Service. About thirty-five persons, including the doctors' wives, daughters and friends, partook of the luncheon.

The first speaker of the afternoon was Dr. Tinsley Brown, Hamilton, who said he was a lifelong friend of Dr. Carr and that they were both the old type of family doctor. He told of the hardships they experienced in the early days, traveling on horseback and carrying their medicine in the now antiquated pill bag. He said the doctors of today know nothing of the hardships experienced by the doctor of the long ago.

Dr. G. S. Dowell, Braymer, commended Dr. Carr for his faithfulness to the Society and for his loyalty to the ethical profession. Dr. Dowell presented Dr. Carr with a fine fountain pen as a token of remembrance.

Dr. Carr responded with a short talk and said this was one of the happiest incidents in his life and would always be remembered as such.

Dr. Spence Redman, as well as Dr. Austin Carr, son of Dr. B. F. Carr, and his sister, Frances, thanked the Society for the reception.

All were glad to be present and to extend their best wishes to Dr. Carr as a good citizen and an honored physician, and went to their homes feeling that those who were unable to be present had missed a great deal.

TINSLEY BROWN, M.D., Secretary.

## JOINT MEETING OF HARRISON, GENTRY AND WORTH COUNTY MEDICAL SOCIETIES

The Harrison, Gentry and Worth County Medical Societies met jointly at a banquet in the Central Hotel, Bethany, July 18, at 7:30 p. m. The wives of the physicians and the dentists of the three counties had been invited to attend. The Societies also had as guests, Drs. E. A. Gummig, St. Joseph, and D. D. Stofer, Kansas City, who were sent by the Postgraduate Committee of the State Association.

Dr. E. A. Gummig read a very interesting paper on "Carcinoma of the Lung," and Dr. D. D. Stofer gave an instructive lecture on "Allergy."

Both subjects were thoroughly covered by the essayists and discussed by the members. The Societies wish to thank Drs. Gummig and Stofer for their valuable talks.

The following were present: Drs. E. A. Gummig and G. A. Koon, of St. Joseph; Dr. and Mrs. D. D. Stofer, of Kansas City; Dr. and Mrs. C. F. Forbes, New Hampton; Dr. and Mrs. F. H. Rose, Dr. and Mrs. T. E. Graham, Dr. and Mrs. W. S. Campbell,

Dr. and Mrs. G. W. Whiteley, Dr. and Mrs. W. T. Martin and Mrs. J. T. Bickel, of Albany; Dr. and Mrs. W. A. Broyles, Eagleville; Dr. and Mrs. A. L. Wessling, Dr. W. J. Harned; Dr. F. H. Broyles; Dr. Elizabeth Broyles, Miss Mamie Buis and Miss Mary Wightman, of Bethany; Dr. F. K. Westfall, McFall; Dr. Lake Brewer, Ridgeway. The following dentists and their wives of Bethany were also present: Dr. and Mrs. C. B. Treasure; Dr. and Mrs. G. A. Miller; Dr. and Mrs. J. G. Hinkle; Dr. and Mrs. F. L. Sawyer.

A. L. WESSLING, M.D., Secretary.

## SCOTT COUNTY MEDICAL SOCIETY

At the May 15 meeting of the Scott County Medical Society held at Benton, the following officers were elected for 1930: President, Dr. G. W. H. Presnell, Sikeston; vice president, Dr. E. J. Nienstedt, Blodgett; secretary-treasurer, Dr. U. P. Haw, Benton. Censors, Dr. W. O. Finney, Chaffee (term expires, 1931); Dr. E. J. Nienstedt, Blodgett (term expires, 1932); Dr. H. M. Kendig, Sikeston (term expires, 1933).

A very interesting talk on "Fractures" was given by Dr. H. M. Kendig, Sikeston.

Dr. E. J. Nienstedt, Blodgett, read a fine paper on "Prenatal Care."

The Society adjourned to meet in Fornfelt on Thursday, September 25, at 8:00 p. m. Dr. G. S. Cannon promises a very interesting program.

U. P. HAW, M.D., Secretary.

## WOMAN'S AUXILIARY

### OFFICERS 1929-30

President, Mrs. M. P. Ravenel, Columbia.

President-Elect, Mrs. A. W. McAlester, Kansas City.

1st Vice President, Mrs. U. J. Busiek, Springfield.

2nd Vice President, Mrs. James F. Owens, St. Joseph.

3rd Vice President, Mrs. H. C. Brashear, Mexico.

4th Vice President, Mrs. L. G. McCutchen, St. Louis.

Corresponding Secretary, Mrs. C. M. Sneed, Columbia.

Recording Secretary, Mrs. David S. Long, Harrisonville.

Treasurer, Mrs. R. C. Haynes, Marshall.

Auditor, Mrs. C. T. Ryland, Lexington.

Directors (2 years): Mrs. W. W. Ford, Gordonville; Mrs. Harry F. Parker, Warrensburg; Mrs. F. H. Spencer, St. Joseph; Mrs. C. C. Cummings, Joplin; Mrs. Raymond Spivy, St. Louis. (1 year): Mrs. T. S. Fleming, Moberly; Mrs. S. F. Freeman, Springfield; Mrs. Robert McE. Schauffler, Kansas City; Mrs. Hudson Talbott, St. Louis; Mrs. J. J. Gaines, Excelsior Springs.

Dr. and Mrs. L. S. James, Blackburn, were host and hostess at the June meeting of the Saline County Medical Society and Woman's Auxiliary. Several doctors and their wives from Lafayette County were also present. An elaborate picnic supper was served in the garden and a splendid musical program given. Each organization held a brief business session.



## RECENT LICENTIATES TO PRACTICE MEDICINE IN MISSOURI

The following applicants for license to practice medicine in Missouri were examined by the State Board of Health, June 11, 12, 13, 1930, and received licenses to practice:

<i>Name</i>	<i>School</i>	<i>Address</i>
Agmar, Albert Ringstrom.....	St. Louis University, 1930.....	St. Louis
Allen, Horace Edward.....	Washington University, 1930.....	Butler
Alsup, William Edes.....	Washington University, 1930.....	Honolulu, Hawaii
Balg, Joseph.....	St. Louis University, 1930.....	St. Louis
Bankhead, Henry Miller.....	Washington University, 1930.....	St. Louis
Barrett, John William.....	St. Louis University, 1929.....	New Castle, Pa.
Barry, George Newton.....	Washington University, 1930.....	Oklahoma City, Okla.
Bauer, Louis.....	Washington University, 1930.....	St. Louis
Bieri, Jacob Andrew.....	St. Louis University, 1930.....	St. Louis
Boal, Robert Weston.....	Washington University, 1930.....	St. Louis
Bowman, Harold Samuel.....	Washington University, 1930.....	Greenfield, Ill.
Boyles, Joe Merritt.....	Washington University, 1930.....	Richmond Hgts., Mo.
Brennecke, Marvin Amos.....	Washington University, 1930.....	Jackson, Mo.
Brown, Wendell Wilhite.....	St. Louis University, 1930.....	St. Louis
Budjinsky, Francis Xavier.....	St. Louis University, 1930.....	St. Louis
Byrne, Ralph Vincent.....	St. Louis University, 1930.....	St. Louis
Byland, Benjamin Frank.....	Washington University, 1930.....	St. Louis
Cain, Charles Floyd.....	St. Louis University, 1930.....	St. Louis
Canty, Eugene Joseph.....	St. Louis University, 1930.....	St. Louis
Cirlot, Joseph Sibley.....	St. Louis University, 1930.....	St. Louis
Conway, James Paul.....	Washington University, 1930.....	St. Louis
Corson, Wesley Connelly.....	Washington University, 1930.....	St. Louis
Cutler, Harry.....	St. Louis University, 1930.....	St. Louis
DeMotte, John Allen.....	Washington University, 1930.....	New Orleans, La.
Devine, John Bernard.....	St. Louis University, 1930.....	Kansas City, Mo.
Diekroeger, Manuel Louis.....	St. Louis University, 1930.....	Brookfield, Mo.
Diehr, Maurice August.....	Washington University, 1930.....	St. Charles, Mo.
Dixon, John Rex.....	University of Kansas, 1930.....	Kansas City, Mo.
Drews, Leslie Charles.....	Washington University, 1929.....	St. Louis
Durst, Henry.....	Washington University, 1930.....	St. Louis
Ector, Henry Joseph (Colored).....	Meharry Medical College, 1929.....	Kansas City, Mo.
Edde, Clifford Granville.....	University of Kansas, 1930.....	Kansas City, Mo.
Eggleston, Donald Edwin.....	Washington University, 1930.....	Kingman, Kans.
Elkins, Higdon Bryant.....	Washington University, 1930.....	St. Louis
Ellett, William Howell.....	Washington University, 1930.....	St. Louis
Estes, Albert Monroe.....	St. Louis University, 1930.....	St. Louis
Farley, John Baron.....	St. Louis University, 1930.....	Detroit, Mich.
Fishman, Jacob.....	Washington University, 1930.....	Chicago, Ill.
Fitzgerald, Thomas Doran.....	St. Louis University, 1930.....	Kansas City, Mo.
Friedman, Lawrence Eugene.....	St. Louis University, 1930.....	St. Louis
Friedman, Michael.....	St. Louis University, 1930.....	St. Louis
Gaetaniello, James.....	St. Louis University, 1930.....	St. Louis
Ganley, William Coyle.....	St. Louis University, 1930.....	Kansas City, Mo.
Garner, Lynn Mason.....	St. Louis University, 1930.....	Milan, Mo.
Gass, Herbert Hermann.....	Washington University, 1930.....	Buffalo, N. Y.
Gatley, Cleo Russel.....	Washington University, 1930.....	St. Louis
Gerwitz, Bernard William.....	St. Louis University, 1930.....	St. Louis
Gitt, Joe.....	Washington University, 1930.....	St. Louis
Goldberg, Isadore Edward.....	University of Kansas, 1930.....	Kansas City, Mo.
Goldman, Hymen Joseph.....	Washington University, 1930.....	St. Louis
Goldwasser, Herbert Valentine.....	Washington University, 1929.....	St. Louis
Gonzalez, Nicasio Gregoria.....	University of Kansas, 1930.....	New Orleans, La.
Gummels, Belmont Bernard.....	St. Louis University, 1930.....	St. Louis
Hall, Francis Whitney.....	St. Louis University, 1930.....	Kansas City, Mo.
Hall, Preston Caldwell.....	St. Louis University, 1930.....	St. Louis
Hand, Orra Robert.....	Washington University, 1930.....	St. Louis
Harms, Florian Louis.....	Washington University, 1930.....	St. Louis
Harris, Charles Waldron.....	St. Louis University, 1930.....	St. Louis
Hathcock, Preston Loyce.....	Washington University, 1929.....	St. Louis
Hayden, Loyola Francis.....	St. Louis University, 1930.....	St. Louis
Heifetz, Carl Jacob.....	Washington University, 1929.....	St. Louis
Horton, James Dwight.....	Washington University, 1930.....	Springfield, Mo.
Howard, Walter Marion.....	Washington University, 1930.....	Joplin, Mo.
Huck, Francis Fisher.....	St. Louis University, 1930.....	St. Louis
Huntley, Charles Clayborne.....	Washington University, 1930.....	St. Louis
Kamesis, John Joseph.....	St. Louis University, 1930.....	St. Louis
Kane, Clyde Ernest.....	Washington University, 1930.....	Gallacia, Ill.
Kearns, Edmond Joseph.....	St. Louis University, 1930.....	St. Louis
Keller, Paul Edwin.....	St. Louis University, 1930.....	Denver, Colo.

<i>Name</i>	<i>School</i>	<i>Address</i>
Kennedy, Francois Lawrence.....	St. Louis University, 1930.....	St. Louis
Kerr, William Hawley.....	Creighton University, 1930.....	Kansas City, Mo.
Killoran, John Bernard.....	St. Louis University, 1930.....	St. Louis
Lange, Adolph Charles.....	Washington University, 1930.....	St. Louis
Lawson, Dwight.....	Washington University, 1930.....	El Paso, Texas
Leonard, Roosevelt.....	Northwestern University, 1930.....	St. Louis
Livingston, Lawrence Gordon.....	Washington University, 1930.....	St. Louis
Long, Fred Peyton.....	University of Tennessee, 1930.....	St. Louis
Loving, Benjamin Rush.....	St. Louis University, 1930.....	St. Louis
Lyons, Dave Joseph.....	St. Louis University, 1930.....	Pittsburg, Kans.
McDonald, John Dave.....	St. Louis University, 1930.....	St. Louis
McGrath, Donald Francis.....	St. Louis University, 1930.....	St. Louis
McGuire, William Albert.....	St. Louis University, 1930.....	St. Louis
McNamara, Ronald John.....	St. Louis University, 1930.....	Parkersburg, W. Va.
McShane, Quintin Ward.....	St. Louis University, 1930.....	St. Louis
Macnish, James Martin.....	Washington University, 1929.....	St. Louis
Marmon, William Daniel (Colored).....	Howard University, 1929.....	St. Louis
Marmor, William Adolph.....	Washington University, 1929.....	St. Louis
Marxer, Webster Leonard.....	St. Louis University, 1930.....	Los Angeles, Cal.
Margolin, Ellis Solomon.....	Washington University, 1930.....	St. Louis
Massengill, Fulton.....	St. Louis University, 1930.....	St. Louis
Mastny, Valerian Joseph.....	St. Louis University, 1930.....	St. Louis
Mayfield, George Conrad.....	Washington University, 1930.....	St. Louis
Merrick, John Newton.....	St. Louis University, 1930.....	Webster Groves, Mo.
Merz, Jean Joseph.....	St. Louis University, 1930.....	St. Louis
Meyer, George Edwin.....	Washington University, 1930.....	St. Louis
Muench, Albert Harry.....	University of Pennsylvania, 1928.....	St. Joseph, Mo.
Murphy, Bernard Leander.....	St. Louis University, 1930.....	San Antonio, Texas
Newmark, Israel David.....	Washington University, 1930.....	St. Louis
O'Connor, Timothy Francis.....	St. Louis University, 1930.....	St. Louis
O'Donaghue, James.....	St. Louis University, 1930.....	St. Louis
Ohrel, Omar Joseph.....	St. Louis University, 1930.....	St. Louis
Orenstein, Joseph Myron.....	Washington University, 1930.....	St. Louis
Orr, Guy Hudson.....	Washington University, 1930.....	St. Louis
Peugnet, Hubert Beaufort.....	St. Louis University, 1930.....	St. Louis
Pittman, James Edward.....	Washington University, 1930.....	St. Louis
Plumpe, William Tupper.....	Washington University, 1930.....	St. Louis
Rambo, William Waldo, Jr.....	Washington University, 1930.....	St. Louis
Ramlo, Leonard William.....	Washington University, 1930.....	Quebec, Canada
Raymond, William Mathew.....	Washington University, 1930.....	St. Louis
Revell, Arthur Joseph.....	St. Louis University, 1930.....	Scammon, Kans.
Roth, Leslie William.....	Washington University, 1930.....	St. Louis
Runde, Raymond Herman.....	St. Louis University, 1930.....	St. Louis
Russell, Joseph Pease.....	St. Louis University, 1930.....	Cape Girardeau, Mo.
Salzman, Jay Marvin.....	Washington University, 1930.....	St. Louis
Scarpellino, Louis Aloysius.....	Washington University, 1930.....	Kansas City, Mo.
Schoetker, George Henry.....	St. Louis University, 1930.....	St. Louis
Schriener, Willard Calvin.....	Washington University, 1930.....	St. Louis
Schwarz, Alfred Joseph.....	St. Louis University, 1930.....	St. Louis
Sheen, Herbert Arnold (Colored).....	Rush Medical College, 1930.....	St. Louis
Shuck, Carl Alfred.....	St. Louis University, 1930.....	St. Louis
Signorelli, Andrew Joseph.....	St. Louis University, 1930.....	St. Louis
Skilling, David Miller, Jr.....	Washington University, 1928.....	St. Louis
Slater, Paul Raymond.....	Washington University, 1929.....	St. Louis
Smith, Clifton.....	St. Louis University, 1930.....	Kansas City, Mo.
Smith, Clarence Matthew (Colored).....	Howard University, 1929.....	St. Louis
Smith, Herbert Phillip.....	Marquette University, 1930.....	St. Louis
Smith, Milton.....	Washington University, 1930.....	St. Louis
Solis, Rene Adolfo.....	St. Louis University, 1930.....	St. Louis
Spickerman, Harold DeWitt.....	Washington University, 1930.....	San Francisco, Cal.
Stapp, Roth Van Allen.....	St. Louis University, 1930.....	St. Louis
Stein, Harry Joseph.....	St. Louis University, 1930.....	St. Louis
Stewart, Wendell.....	Washington University, 1930.....	St. Louis
Sutton, Richard Lightburn, Jr.....	University of Michigan, 1929.....	Kansas City, Mo.
Tess, Melvin John Henry.....	Washington University, 1930.....	St. Louis
Tjoflat, Oliver Eugene.....	University of Wisconsin, 1929.....	St. Louis
Townsend, Mary Alice DeMotte.....	Washington University, 1930.....	New Orleans, La.
Verneuil, Julius Louis.....	St. Louis University, 1929.....	Collinsville, Ill.
Vitt, Alvin Elmer.....	St. Louis University, 1930.....	St. Louis
Wagner, Richard Joseph.....	St. Louis University, 1930.....	St. Louis
Wall, Emmett Daniel.....	St. Louis University, 1929.....	Peoria, Ill.
Welch, Eldred Ellsworth.....	St. Louis University, 1930.....	St. Louis



<i>Name</i>	<i>School</i>	<i>Address</i>
Werner, Harold Theodore.....	Washington University, 1930.....	St. Charles, Mo.
Werth, Joseph Andrew.....	St. Louis University, 1930.....	San Antonio, Texas
Williamson, Oscar William.....	St. Louis University, 1929.....	St. Louis
Yancey, Daniel Layton, Jr.....	St. Louis University, 1930.....	St. Louis
Tandy, Roy William.....	Washington University, 1930.....	Louisville, Ky.
Taylor, Leon Akers.....	Washington University, 1930.....	Jefferson City, Mo.
Tidwell, John William.....	Washington University, 1930.....	St. Louis

#### Licenses By Reciprocity Issued From January 10 to July 30, 1930

<i>Name</i>	<i>Home Address</i>	<i>Reciprocal State</i>	<i>Proposed Address</i>
Abramowitz, J. B.....	Des Moines, Ia.....	Kansas.....	Kansas City, Mo.
Aitken, L. F.....	St. Louis .....	National Board.....	St. Louis
Baker, L. L.....	St. Louis .....	Tennessee.....	St. Louis
Bower, R. L.....	Fargo, N. D.....	Illinois.....	Kansas City, Mo.
Caldwell, C. L.....	St. Louis .....	National Board.....	St. Louis
Cone, A. J.....	Muscataine, Ia.....	Iowa.....	St. Louis
Davis, Luther .....	Chatfield, Ark.....	Arkansas.....	Caruthersville, Mo.
Denison, C. M.....	Harrisburg, Pa.....	New York.....	St. Louis
Dixon, J. L.....	Clay Center, Kans.....	Kansas.....	Clay Center, Kans.
Gorilla, L. V.....	St. Louis .....	Arkansas.....	St. Louis
Gregory, W. R.....	Topeka, Kans.....	Kansas.....	Kansas City, Mo.
Green, J. S.....	Kansas City, Mo.....	Pennsylvania.....	Kansas City, Mo.
Hoxie, D. A.....	Dexter, Mo.....	Nebraska.....	Dexter, Mo.
Hume, H. C.....	Humboldt, Kans.....	Kansas.....	Bagnell, Mo.
Jacques, J. S.....	St. Louis .....	Tennessee.....	St. Louis
Johnson, P. A. G.....	Kansas City, Mo.....	Kansas.....	Kansas City, Mo.
Katsuki, D. I.....	St. Louis .....	National Board.....	St. Louis
Kaiser, M. E.....	Moberly, Mo.....	Kansas.....	Moberly, Mo.
Keyes, E. L., III.....	New York City, N. Y.....	National Board.....	St. Louis
Lacy, N. E.....	Rochester, Minn.....	Minnesota.....	Kansas City, Mo.
Macauley, B. J.....	Ellis Island, N. Y.....	Nebraska.....	Poplar Bluff, Mo.
Macon, W. L., Jr.....	St. Louis .....	Tennessee.....	St. Louis
McCall, W. S.....	Blytheville, Ark.....	Arkansas.....	St. Louis
Minsky, Armen .....	Kansas City, Mo.....	Minnesota.....	Kansas City, Mo.
Moorehead, M. T.....	Kansas City, Mo.....	National Board.....	Kansas City, Mo.
Muckenfuss, R. S.....	St. Louis .....	Georgia.....	St. Louis
Pitts, C. N.....	Chicago, Ill.....	Iowa.....	St. Louis
Pyle, L. R.....	Toledo, Ohio .....	National Board.....	Kansas City, Mo.
Rettenmaier, A. J.....	Kansas City, Kans.....	Kansas.....	Kansas City, Kans.
Robinson, S. B.....	Atlanta, Ga.....	Georgia.....	Kansas City, Mo.
Rubin, Harold .....	Kansas City, Mo.....	Michigan.....	Kansas City, Mo.
Saunders, G. C.....	Rochester, Minn.....	National Board.....	St. Louis
Seibel, M. G.....	St. Louis .....	Kentucky.....	St. Louis
Serio, P. P.....	St. Louis .....	Michigan.....	St. Louis
Stegman, J. J.....	St. Louis .....	Iowa.....	Marshalltown, Ia.
Swanberg, Harold .....	Quincy, Ill.....	Illinois.....	Undetermined
Toner, T. J.....	Kenosha, Wis.....	Illinois.....	St. Louis
Walton, E. F.....	St. Louis .....	National Board.....	St. Louis
West, G. C.....	Sedalia, Mo.....	Tennessee.....	Sedalia, Mo.
Williamson, W. E.....	Iraan, Texas .....	Texas.....	St. Louis
Wilson, H. M.....	St. Louis .....	Illinois.....	St. Louis
Wineberg, I. H.....	Quincy, Ill.....	Illinois.....	Taylor, Mo.
Ziegler, A. M.....	Kansas City, Mo.....	Kansas.....	Kansas City, Mo.

## TRUTH ABOUT MEDICINES

TOBACCO ADVERTISING GONE MAD.—The modern tendency for advertisers of all kinds of merchandise to drag the health angle into their advertisements is one of the most disturbing features in the modern advertising field. The medal for the most horrible example would seem to go to the American Tobacco Co. in the exploitation of Lucky Strike Cigarets and Cremo Cigars. The exploiters of Lucky Strike Cigarets have claimed that 18,000 physicians have testified that "the heat treatment, or toasting process, applied to tobacco previously aged and cured" is likely to free the cigaret "from irritation to the throat." There was also started a campaign, "Reach for a Lucky instead of a Sweet," in which—either

directly or by implication—young women were urged to smoke Lucky Strike Cigarets when they had a desire to eat candy, or pastry. Another branch of the American Tobacco Co.'s business has been carrying on an advertising campaign for "Cremo" cigars in which the public is led to believe that most cigars are handmade and have their tips finished off with the saliva of the individual workman. Physicians will readily admit that many young women eat more candy than is good for them, but they will certainly not agree that the substitution of cigars in such cases is in the interest of public health. Physicians may also admit that, theoretically, it is possible for disease to be transmitted by means of cigars. But when one considers the millions of cigars that are consumed annually and that it is extremely difficult to find in medical lit-

erature any real evidence of the transmission of pathologic bacteria by means of cigars, the campaign of the Cremo concern stands condemned. (Jour. A. M. A., March 15, 1930, p. 810.)

**MORE MISBRANDED NOSTRUMS.**—The following products have been the subject of prosecution by the Food Drug and Insecticide Administration of the U. S. Department of Agriculture which enforces the Federal Food and Drugs Act: Nutriol (Boss and Seiffert Company, Inc.) consisting essentially of calcium, iron, manganese, potassium, sodium and phosphorus compounds, with quinine, strychnine, extracts of wild cherry, a trace of fish oil, glycerin, alcohol and sugar. Trent's Tonic Cold Tablets (The Trent Laboratories) containing acetanilid, camphor and caffeine. Rau's Cold and Pain Tablets (S. Pfeiffer Manufacturing Company) containing aspirin, phenacetin and caffeine. Dar-Ling-Oil (The Hemlock Oil Company) containing camphor, chloroform, mustard oil and pine oil. Flaxseed Menthol Wild Cherry Cough Syrup (Hance Bros. and White, Inc.) containing benzoic acid, menthol, glycerin, sugar, alcohol and artificial coloring. Luft's Cold, Grippe and Influenza Tablets (George W. Luft Company, Inc.) containing aspirin, phenolphthalein, red peppers and traces of the alkaloids of aconite and belladonna. Thoxine (The Reese Chemical Company) containing a laxative plant drug, a pungent principle, such as red pepper, calcium carbonate and a sulphate. Bromo-Aspirin (The Casey Chemo Therapy Company) containing 3 7/10 grains of aspirin, 2 3/10 grains of ammonium bromide and 1/2 grain of caffeine. Rider's Liniment (G. Haggard Rider) consisting of gasoline, with traces of oil of sassafras and camphor. Sedafen (Sedafen Products Company) containing acetphenetidin (phenacetin), acetyl-salicylic acid (aspirin) and caffeine. (Jour. A. M. A., March 22, 1930, p. 887.)

**ETHYLHYDROCUPREINE.**—Clinicians of large experience have grown skeptical about the use of ethylhydrocupreine (optochin) in the treatment of pneumonia, whereas they were once enthusiastic, and hopeful about its possibilities. In a review of this subject, Cahn-Bronner cites an extensive literature and concludes from his own experience and a review of numerous authors that ethylhydrocupreine is not superior to quinine and that neither drug is a specific in the treatment of pneumococcus pneumonia. The following with reference to ethylhydrocupreine appears in New and Nonofficial Remedies: "Clinical investigation indicates that the drug may be of value in the treatment of lobar pneumonia, if a sufficient amount can be administered sufficiently early without untoward effect. To avoid such effect it is proposed to secure low absorption through the administration of the free base by mouth. The hydrochloride may be administered intramuscularly, but is liable to be irritant. Intravenous administration seems to be contraindicated. The drug has a definite value in the treatment of pneumococcic infections of the eye (ulcus corneal serpens)." (Jour. A. M. A., March 22, 1930, p. 888.)

### FOODS

The following products have been accepted as conforming to the rules of the Committee on Foods of the Council on Pharmacy and Chemistry of the American Medical Association:

**BORDEN'S NATURAL FLAVORED MALTED MILK** (The Borden Co., New York). It is a processed mixture of barley malt, wheat flour and whole milk, reduced to powdered form. The product contains: fat, 9.2

per cent; protein, 15.5 per cent; lactose, 13.5 per cent; maltose, 35.6 per cent; dextrin, 20.2 per cent; ash, 3.8 per cent; moisture, 2.2 per cent. It is easily digested.

**MELLIN'S FOOD BISCUITS** (Mellin's Food Co., Boston). They contain a large percentage of Mellin's Food. (Jour. A. M. A., April 12, 1930, p. 1145.)

The following products have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in New and Nonofficial Remedies:

**SYNEPHRIN.**—Hydroxyphenylmethylaminoethanol Hydrochloride.—The hydrochloride of an alkaloid obtained synthetically. Synephrin is used as a vasoconstrictor. It is less toxic than either epinephrine or ephedrine, and its vasoconstrictor action, while not so pronounced as that of epinephrine, endures for a longer time. In combination with procaine hydrochloride it is useful for local anesthesia in dental operations and in minor surgery in cases in which a bloodless area is not required. The drug is also supplied in the form of Synephrin Solution "A," Ampoules Synephrin-Procaine, 3 cc. and Hypodermic Tablets Synephrin-Procaine. Frederick Stearns & Co., Detroit.

**MEAD'S DEXTRI-MALTOSE WITH VITAMIN B.**—A mixture containing approximately: maltose, 52.58 per cent; dextrans, 39.80 per cent; protein, 4.34 per cent; mineral salts, 2.28 per cent; and moisture, 1.00 per cent. It is standardized physiologically to contain in each 2.5 Gm. the vitamin B<sub>1</sub> and B<sub>2</sub> equivalent of approximately 1 Gm. of dried yeast or 2 Gm. of wheat embryo. Mead's Dextri-Maltose with Vitamin B is proposed for use in the diet of infants suffering from vitamin B deficiency. Mead Johnson & Co., Evansville, Ind. (Jour. A. M. A., May 3, 1930, p. 1405.)

**SCILLAREN.**—A mixture of the natural glucosides, scillaren-A and scillaren-B, occurring in fresh squill *Urginea maritima*, in the proportions in which they exist in the fresh crude drug; namely, about 2 parts of scillaren-A to 1 part of scillaren-B. Completely dried scillaren contains approximately 98 per cent of the active glucosides. Scillaren dried in a high vacuum at 78 C. for fifteen hours loses not more than 6 per cent of its weight. The cardiac action of scillaren is essentially similar to that of digitalis; but this action is apparently less persistent than that of digitalis. Scillaren is administered orally and is supplied in the form of tablets containing 0.8 mg. (1/80 grain) of scillaren and in the form of a solution containing 0.8 mg. (1/80 grain) of scillaren. Sandoz Chemical Works, Inc., New York.

**SCILLAREN-B.**—The amorphous component of the natural mixture of the glucosides occurring in squill, *Urginea maritima*. Completely dried scillaren-B contains approximately 99.5 per cent active glucosidal substance. Scillaren-B dried in a high vacuum at 78 C. for fifteen hours loses not more than 5 per cent of its weight. The actions and uses are the same as those of scillaren. It is administered intravenously when immediate action is imperatively indicated. Scillaren-B is marketed in the form of ampoules each containing 0.5 mg. (1/130 grain) of scillaren-B. Sandoz Chemical Works, Inc., New York.

**AMPOULES GLUCOSE** (Dextrose, U. S. P.) Lilly, 50 Gm., 100 cc.—Each ampoule contains dextrose, U. S. P. (New and Nonofficial Remedies, 1930, p. 245) 50 Gm.; distilled water to make 100 cc.; accompanied by an ampoule containing 4 cc. of a buffer solution. Eli Lilly & Co., Indianapolis.



## BOOK REVIEWS

A TEXTBOOK FOR MIDWIVES. By John S. Fairbairn, M.A., B.M., B.Ch. (Oxon.), F.R.C.P. (Lond.), F.R.C.S. (Eng.) Mast. Midw. Soc. Apoth. (Lond.), Consulting Obstetric Physician, St. Thomas' Hospital and General Lying-In Hospital, York Road, S. E., etc. Fifth edition. With three plates and 119 illustrations, five in colour. Oxford University Press, American Branch, 35 West 32nd Street, New York. Price \$8.00.

This book is dedicated to the young woman who aspires to be a practical obstetrician, yet cares to be neither a physician nor a nurse.

The laws of England are very strict, according to this writer, in demanding that a physician be called under certain circumstances and clearly specify just what these circumstances are. This is illuminating to American physicians giving a clear insight into the relationship that exists between midwife and physician in Great Britain.

The chapters on embryology and normal childbirth are very complete and describe better methods than were used by medical students some years ago.

This book is to be strongly recommended to the student midwife or the student nurse who intends to specialize in obstetrics. W. C. G.

ANNUAL REPRINT OF THE REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR 1929. With Comments that have appeared in THE JOURNAL. Cloth. Price \$1. P. 81. Chicago: American Medical Association, 1930.

This is the volume in which the Council annually collects the reports on articles found unacceptable during the year. This edition contains also several interesting preliminary reports on preparations which show promise but for which the evidence is not yet sufficient to justify acceptance by the Council. Reports are given on the following products rejected by the Council: Anayodin, claimed to be iodoxyquinolinol sulphonie acid (chiniofon) but marketed under a noninforming name without adequate statement of composition and with unwarranted therapeutic claims; Antiustio, an unscientific mixture marketed under a nondescriptive name with unwarranted therapeutic claims; Kerasol and Keraphen, unoriginal products marketed under non-informing names; Sodiphene, an unoriginal alkaline phenol preparation marketed under a proprietary name with unwarranted therapeutic claims; Borocaine, procaine borate under a proprietary name; Quicamphol (Transpulmin), a quinine preparation for intramuscular injection in the treatment of lobar pneumonia; Toxogon, a preparation of inadequately declared composition marketed under a therapeutically suggestive name; Intramuscular Iron Arsenic Comp. (No. 201) and (Intravenous) Iron Cacod, and Glycerophosphate (No. 202), two irrational and unscientific mixtures exploited with emphasis on the numbers. Other rejected products are: Ovoidermin, Tamerici Salts, Elixir Kacyan-McNeil, and Tablets Kacyan-McNeil. An authoritative article on serum disease and serum accidents by MacKenzie and Hanger is of considerable interest and timely importance.

NEW AND NONOFFICIAL REMEDIES, 1930. Cloth. Price, \$1.50. P. 481; xlviii. Chicago: American Medical Association, 1930.

The present edition contains all of the features that have in the past made New and Nonofficial Remedies such a reliable and efficient a guide to the physician who wishes to inform himself on the newer medicinal preparations: logical classification of preparations, with authoritative articles on each class; complete and carefully written descriptions of preparations; elaborate indexes; and a useful cumulative list of references to the literature on articles not accepted by the Council. Among the more important revisions that appear in this edition are those of the general articles, Barbitol and Barbitol Compounds, Digestive Enzymes, Cod Liver Oil and Cod Liver Oil Preparations, Ovary, Pituitary Gland, Radium and Radium Salts, and Serums and Vaccines. Among the new preparations descriptions of which appear for the first time in this edition are: Bismarsen, which is sulpharsphenamine bismuth; Dial-Ciba, which is diacetylbarbituric acid; Calcium Gluconate-Sandoz, a more palatable and less irritating preparation of calcium; Atoquinol-Ciba, a cinchophen derivative; Pitocin and Pitressin, solutions respectively of the oxytocic and pressor principles of the pituitary gland; Viosterol the Council name for irradiated ergosterol) in the forms of Viosterol in Oil 100 D, which is irradiated ergosterol dissolved in vegetable oil, and Cod Liver Oil with Viosterol 5 D, which is cod liver oil with its vitamin D potency enhanced by addition of viosterol. While these new preparations (with the possible exception of Viosterol) do not constitute major additions to the physician's armamentarium, each one gives promise of relative usefulness, and the physician who desires to keep abreast with the progress of therapeutics will familiarize himself with them as well as with the many other new preparations described in this valuable book.

CANCER OF THE BREAST. By William Crawford White, M.D., F.A.C.S., Junior Surgeon to the Roosevelt Hospital, Consulting Surgeon to the New York Nursery and Child's Hospital, etc. New York: Harper & Brothers. 1930. Price \$3.00.

This book is a concise but comprehensive monograph of some 200 pages taking up anatomy, physiology, pathology, differential diagnosis, roentgen ray therapy, radium therapy and surgery. The subject matter is well handled and a carefully selected bibliography follows each chapter.

To those who follow the teaching of some of our eminent leaders in surgery in doing a mamnectomy with removal of the pectoral fascia, a close study of the chapter on anatomy which outlines the lymphatic drainage, is advisable.

The chapter on the history of the development of breast surgery is interesting. The contribution of Willy Meyer in removing both pectorals and beginning the dissection in the axilla should be emphasized since it is the routine in most clinics.

The chapter on operative technic gives in detail the principles of Halstead, Willy Meyer, Rodman and Stewart operations and the operation as performed at the Roosevelt Hospital, with a fair discussion of their relative merits.

The little volume can be heartily recommended for its sound principles and should be in the hands of every-one doing cancer surgery. W. E. L.

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### THE HERITAGE OF SIGHT; ITS CONSERVATION \*

G. E. DE SCHWEINITZ, M.D.

PHILADELPHIA, PA.

Adoption of medicine and surgery as a profession carries with it as a prime obligation "the relief of human suffering and the prevention of disease."

Those of us who have allocated our chief endeavors to one important special department of medical and surgical science daily dedicate exertion by the very nature of our work to the conservation of sight and the prevention of blindness, being one part of our contribution to the outstanding tendency of contemporary medical effort,—preventive medicine.

Mr. Leslie Dana, of his generosity, has provided for the bestowal of a medal which serves the purpose of emphasizing the importance of such efforts and of such studies.

In our country there is a considerable group of men who with fine fidelity steadfastly strive along these lines. I am greatly honored in that this year I have been selected to be, as it were, their representative, and to receive this sign of approval of the work we have endeavored to do, and I express my high appreciation of this distinction.

The dedication in Dr. Harry Best's noteworthy book "The Blind; Their Condition and the Work Being Done for Them in the United States," reads: "To those bearing the heaviest of human sorrows . . . and to those who labor for them with infinite courage and faithfulness."

It is not the purpose of this essay to concern itself as its major theme with those who bear this sorrow, nor with those who with boundless patience and untiring effort, strong in their belief that blindness can be circumvented, carry on a system of special education whereby, to quote the words of Sir James Crichton-Browne, "the blind can be lifted out of their blindness and can be prepared for future usefulness and independence." And it

is a matter of rejoicing that their recompense for service rendered is evident in the success they have achieved, as high as 87 per cent in the institution with which I am best acquainted, a percentage equalled by many of the other schools in our land.

But it seems on this occasion, and consonant with the effort which Mr. Dana's interest serves to stimulate, consonant, too, with the record of this great state and city in the work concerned with the preservation of sight and the means to check its degradation, that a review of some of the results should occupy our attention this evening during the time allotted for this address.

I am well aware that in this audience are many who are quite familiar with the achievements along these lines. But the things which have been done may well be regarded as an earnest of those which shall be done, and therefore become part of the picture.

Naturally, the word "blind" must possess a certain elasticity of meaning, and hence we classify the "blind population" of our country into groups. We have the totally blind, that is, those deprived of light perception, with whom may be included those who still perceive bright light but nothing more; those who see something, as we are apt to say, or, in general terms, have imperfect object perception; and those—and it is an important group—who are "partly sighted," but who without specialized education are excluded from the ordinary vocations whereby they may earn a living.

Should it be possible to examine critically 100,000 blind men, women and children in a given country, for instance, ours, it is probable we should find that about one-fourth of this number had lost their sight because of some affection or infection which in proper circumstances might have been prevented.

When the knowledge of these facts, or, in general terms, of the fact that in any considerable number of blind persons there exists a large percentage who need not have been deprived of useful vision filtered through the community, it constituted a "challenge," as Mr. Henry Copley Greene would say. Society and

\* Read before the St. Louis Medical Society, May 24, 1930.



our profession were called to account; something had to be done about it. And something has been done; a good deal, indeed, thanks to research, clinical observation, public, private and professional exertion and organized effort.

Gradually the science and art of prophylaxis with respect to blindness developed, and during the last half century has attained a sturdy growth, to which those who devote their lives to its upkeep and development may point with reasonable pride.

For many generations, conspicuous among the preventable causes of blindness, as all of you well know, ophthalmia neonatorum stands forth, one variety of this conjunctivitis of newborn children having exercised an especially baleful influence.

The late Professor Hirschberg,<sup>1</sup> the most famous of ophthalmological historians, referring to the geographical distribution of this affection, mentions that he has encountered it in Japan, China, East India and Egypt. Indeed, so far as I am aware, with the exception of Palestine, where it is practically unknown, conjunctivitis neonatorum is widely distributed throughout the civilized world.

There appears to be no mention of the disease in the works of Hippocrates. Perhaps it was known to the ancient Greeks (authority of Haussman, but disputed by Hirschberg), and quite certainly to those of a later period, for instance, Soranus (of the second century A. D.), the chief authority on obstetrics and pediatrics of antiquity (F. H. Garrison), and at a still later date, to Aetius (fifth century A. D.) who directed irrigation of the eyes of new-born children as a preventive measure.

Although Laz Riverius has been credited with the earliest accurate description of ophthalmia neonatorum (1669), he really, according to Hirschberg, recorded only one case of this affection, and it was, as Hirschberg insists, Quellmalz (1750) who first drew widespread attention to the importance and frequency of this disease.

From the beginning of the last century, many attempts were made to prevent the disease by prenatal treatment of the mother, and in 1807 Gibson in Scotland published a set of prophylactic rules which included the treatment of the eyes of the infant "with a cleansing fluid." It is doubtful if these rules were ever systematically obeyed.

Referring to Saemisch's<sup>2</sup> paragraphs which relate to the history of this affection, we learn that even before Neisser, in 1879, discovered the micro-organism which bears his name,

nitrate of silver in 1 per cent solution was instilled by Kehrner in the eyes of infants born of mothers known to have gonorrhea, with good results.

Bischoff in Basel, during the years 1875-1876, reduced his percentage of ophthalmia neonatorum 3 per cent by carbolyzed vaginal irrigations and ocular instillations of salicylate-solution; Schiess urged midwives to pay especial attention to the eyes of new-born infants, and advocated as the prophylactic  $\frac{1}{2}$  per cent carbolic acid solution. Schmidt-Rimpler used *aqua chlorini* (which, indeed, had been employed by Gottfried Eisenmann as early as 1830), and continued to recommend it even in place of silver nitrate; Olshausen, following Graefe's advice, employed carbolic acid as his antiseptic, and is said to have reduced the incidence of ophthalmia neonatorum from 12.5 to 6 per cent; and Haussmann made the important observation that the surface and edges of the lids should be cleansed before parting them in order to instill the antiseptic lotion.

While it is fitting and proper that references to these historical data should be made, and the workers duly credited with their early efforts, the outstanding event in the development of ophthalmia neonatorum prophylaxis is due to Carl Siegmund Franz Credé, who in the great Leipzig Lying-in-Institute which he had founded reduced an average of 10.8 per cent of cases of conjunctivitis among the whole number of the new-born to 0.1 to 0.2 per cent.

His unusual success depended upon his recognition that the active micro-organism, which Neisser had then discovered, was resident in the conjunctival sac, and that there it must be attacked and rendered harmless; upon the perfection of his technic (immediate cleansing of the surface and edges of the eyelids before their separation to permit the instillation of a *single* drop of 2 per cent solution of nitrate of silver with the aid of a polished glass rod), and upon the application of the remedial measures in the case of *all* of the new-born children without distinction, because of the difficulty of clinically distinguishing promptly between an innocent and an infected secretion in the genital tract of the mother at the time of birth.

Within a week from tonight it will be just fifty years since Credé put this method of procedure, gradually quite generally adopted, into operation, being an innovation which, as Fielding Garrison has written, entitles him to the permanent gratitude of mankind.

The prevention of ophthalmia neonatorum in a properly equipped maternity hospital presents a problem far more easily solved than is the same problem as it arises among children

1. Centralbl. f. prakt. Augenheilk. 18:40, 1894.

2. Graefe-Saemisch: Handbuch der Gesamten Augenheilk, 2 auflage B. V., p. 238.

born outside of such environment. Doubtless Hofrat Fuchs, who was with you last October, was thinking in the terms of hospital facilities when he described in his famous book Credé's prophylactic treatment, by means of which he believed conjunctivitis of the new-born might be made to disappear almost entirely; indeed, Credé practically accomplished that desirable state of affairs in the Lying-in Institution in Leipzig.

In the last half century the program for the prevention of this form of blindness has been extended, and one of the most important of these extensions is education, that is, systematic instruction with respect to the dangers and the prevention of ophthalmia neonatorum. Such instruction is intimately concerned with the midwife and other persons who have charge of a new-born child, and it should be part of the duties of teachers of ophthalmology, obstetrics, bacteriology and sanitary science, so that their students shall acquire the needed information and a proper respect for future responsibilities; and happily this is a duty which is not neglected.

The impression is well founded that expectant mothers in all walks of life are now quite generally alive to the importance of guarding the new-born baby's eyesight. This is a factor of large influence in the business of prevention, thanks to the efforts of welfare workers, hospital social services, visiting nurses, and the "aggressive but discriminating publicity campaign" carried out by the National Society for the Prevention of Blindness, by the American Foundation for the Blind and by other similar organizations, whereby the public becomes acquainted with the best known methods of eliminating this and other causes of preventable blindness.

But, naturally, although the avenues of information are numerous, not all those who should be informed are reached and hence it is a duty of physicians, especially those whose practice is concerned with maternity service among those who are of the humbler walks of life, to preach the gospel of prevention and practically carry out its precepts.

As you know, the use of a prophylactic by physicians and midwives is required by law or regulation in many of the states of our country. But there is much difference of opinion whether such unrestricted compulsory use of a prophylactic is desirable, and it has not always received the endorsement of organized medical associations, or of many physicians with large influential obstetrical practices whose clients receive every prenatal care and caution. They (these physicians) demand that they shall be

the judges as to whether a strict Credé technic shall be employed.

Indeed, the commission to study conditions relating to blind persons in Pennsylvania concludes that it is not practical to require by law the use of such prophylaxis in the case of *every* new-born child. But there is general agreement that Credé's method should be employed in hospital services, by all instructed midwives, and of course always if the birth canal is known to be infected or the suspicion of infection cannot be excluded, a 1 per cent silver solution being of sufficient strength.

On the other hand, a law which requires that ophthalmia neonatorum shall be promptly reported in the same manner as any other communicable disease is a good law,—the child secures prompt attention either from its own physician or from some one sent for the purpose who has the necessary expert knowledge.

The objection to this law has been raised that such reporting would be resented by the community at large, and particularly by the family from which the report was made. But it is now generally known that a considerable percentage of the cases of infantile ophthalmia are not due to the Neisser infection, which removes from the report in large measure its stigma and as Mr. Harman has said, "Notification offends the scruples of no one, not even those affected by the notification, if it is decently done."

Twenty years ago, when the census of the blind was concluded, the Census Bureau, although the number given was 57,272, believed that the true number was greater by about 14,000, making a total of something over 71,000. Approximately it was estimated that 7 to 8 per cent of this number was in most regions of our country ascribed to the virulent (gonococcic) types of conjunctivitis neonatorum.<sup>3</sup>

On the other hand, the average proportion of pupils blind from this disease among the total number admitted to schools for the blind was not less than 23 per cent, and in many institutions reached a much higher figure.

Now, what effect has the insistent warfare which has been described had on the incidence of conjunctivitis neonatorum? Evidently there has been a most gratifying decrease of this affection during the past ten years, and in order to justify this statement certain available data are at our disposal.

For the two residential schools for the blind maintained in Pennsylvania (Philadelphia and Pittsburgh) during a thirty years' period,

3. It is practically impossible to be sure of the entire accuracy of these figures. See "The Blind," by Harry Best, 1919, p. 3.



namely, 1895 to 1924 inclusive, 24 per cent of the new admissions were blind from ophthalmia neonatorum. When these new admissions are distributed into five year periods, it appears the peak was reached for the period 1905 to 1909, that is, 32.5 per cent. Since then there has been steady decline, and in the last five year period, 1920 to 1924, only 17 per cent of all pupils admitted were blind from this cause.<sup>4</sup>

In Philadelphia<sup>5</sup> there has been a remarkable reduction in the frequency of occurrence of conjunctivitis of babies whose birth was attended by midwives, the rate for 1914 being 52.3 per one thousand live births, while that for 1928 was 5.1.

A striking record is the one published in graphic form by the National Society for the Prevention of Blindness, which depicts the blindness due to ophthalmia neonatorum in new admissions to United States schools for the blind, 28.2 per cent in 1907 and a steady decline from 1921 to 1929, when the percentage is only 9.3, being, therefore, a twenty-two year decrease of 66.3 per cent.

At Wills Eye Hospital in 1914, among 13,840 patients applying for treatment, there were 17 ophthalmia cases; in 1929, among 21,888 patients, there was only one applicant.

In a lying-in institution with which I am familiar there are two services. In one a strict Credé prophylaxis is a firmly established rule, and not a single case of ophthalmia neonatorum has occurred during the last five years; in the other this rule does not obtain, and conjunctivitis is not uncommon although not always the gonococcic variety.

These examples suffice. Evidently Credé's prophylaxis used in proper circumstances and with the aid of a proper technic whereby the so-called silver-catarrrhs are avoided; improved prenatal treatment; judicious publicity; education, which should reach not only those already named but also those who contemplate marriage and the responsibilities of paternity; compulsory notification, and the punishment of those who disregard legal regulations have accomplished great things with respect to one conspicuous cause of preventable blindness.

I have grouped these various methods of prevention, not for the purpose of appraising one as compared with another, but to emphasize the value and need of all of them and of our duty as physicians and citizens to maintain the ground which has been gained and increase its area, each according to his ability and opportunity.

In any communication about the prevention of blindness it is impossible to avoid mention of trachoma. But in the present circumstances it must, indeed, be merely a mention although, considering the importance of the subject, it might well occupy our undivided attention.

From the time when the Ebers-Papyrus was compiled, more than three thousand years ago, trachoma has flourished; it is, indeed, to use Hirschberg's expression, a "welt-krankheit." Thus far it has defied the discovery of its true cause.

At what period trachoma invaded our own country is unknown. It may have been introduced during Colonial days or in the tide of immigration at a later period.

Although our trachoma problem does not compare with that in the older world in many regions of which it is in evidence, we have long coast lines which must be guarded, large areas in Illinois, the mountainous regions of Kentucky, Tennessee and Virginia, where trachoma is persistently resident; also in Oklahoma, Arkansas, Texas and New Mexico. Its implantation in our Indian population is well known to all of us.

The admirable work of the United States Public Health Service, especially in the trachoma belts just mentioned, the establishment of trachoma hospitals and the segregation of those afflicted, the research work in the U. S. Trachoma Hospital at Rolla in this state, and the wide interest created by the late Dr. Noguchi's discovery of the *Bacterium Granulosis*, even though its relation to the etiology of this disease is not settled, the splendid grant by the Commonwealth Fund of money to be controlled by the Research Department of Ophthalmology in Washington University of this city in the future study of this affection are only a few indications of the advances in the efforts to stamp out in this country this worldwide disease.

I am sure we all join in Dr. Wilder's recommendation that a transfer of the management of health matters among the Indians should be made from the Indian Medical Service to the U. S. Public Health Service. This does not in the least imply a criticism of the efforts of the Indian Medical Service to control trachoma, but surely this disease represents a tremendous public health problem and should be part of the Service mentioned and recommended. There is no reason why the two Services should not work in perfect sympathy and uncontenting equity.

In all efforts which pertain to the preventable causes of blindness, ophthalmia neonatorum and trachoma almost invariably, and not unnaturally, hold the center of the stage. This

4. Report of Commission to Study Conditions Relating to Blind Persons in Pennsylvania, 1925, Harrisburg, Pa.

5. A Special Inquiry on Conservation of Vision, Philadelphia, Chapter 8, Philadelphia Hospital and Health Survey.

is one reason, as I have endeavored to show, certainly in so far as the conjunctivitis of the new-born is concerned why its range of influence in adding to the blind population of the country is definitely on the decline.

But a good many people appear to think that in our organized efforts for the prevention of blindness and prevention of ophthalmia neonatorum and control of trachoma these are, as it were, synonymous terms, and fail to realize how wide the field of our activities is and should be with respect to other causes of blindness which belong to the catalogue of those which are preventable.

Among these glaucoma is a conspicuous example. In point of fact, in any classified list of the causes of blindness based on a considerable number of those thus affected, glaucoma will usually be in the third place, exceeded in frequency only by diseases of the lenticular system and the optic nerve apparatus.

It is an ancient disease. It was known to and described by Hippocrates, but the ancients were familiar only with the acute or inflammatory type of the disorder, which von Graefe's immortal discovery centuries later did so much to check. It was not until the ophthalmoscope was introduced by von Helmholtz 79 years ago that the chronic, non-inflammatory types of this disorder were definitely recognized.

Even in our time only too often these chronic cases escape detection until it is too late to check by surgical or other means the advancing loss of vision.

Fifteen years ago, speaking at a meeting of the National Society for the Prevention of Blindness, I ventured to discuss this matter from the standpoint of prevention, emphasizing the frequency of glaucoma blindness as it had been exposed by the investigations of the Massachusetts Commission for the Blind. I crave permission to quote from this essay:

To prevent this disease, or, rather, to check it after it has been discovered, Mr. Henry C. Greene suggests eugenic education. The importance of this form of education in relation to all forms of hereditary blindness has been well described by Mr. O. H. Burritt and Dr. H. D. Lamb, of the Missouri School for the Blind (See American Association of Instructors of the Blind, 25th Biennial Convention, 1928), and formed the subject of much investigation by the late Dr. Lucien Howe. Greene further suggests a wise distribution of public clinics, and a careful record from the social worker's desk of patients who have come for the relief of glaucoma so that they shall come under the influence of the follow-up system.

A great difficulty is that patients with the non-painful, so-called chronic types of glaucoma often report too late. They do not realize what has been slowly taking place and come only when vision is so far degraded that they are helpless. We educate, or try to educate, households in the dangers and symptoms of ophthalmias. Why not educate them

in the symptoms of early glaucoma? I called to see a woman blind, or practically blind, from this disease not long ago and while evolving the history, the long pathetic history, I was struck by an expression of one of the children in the family who remarked, "We used to wonder when mother took us to the movies why she always saw colored rings around the lights." If only "mother" had known what those colored rings meant there would be one less blind woman in the city from which I come!

Now the social worker who makes, to use Mr. Greene's expression, a calendar of glaucoma patients in any hospital and properly follows them up will do much, for it is through this channel that the education most readily passes to the races among which this disease is most prevalent and who are the best customers of the eye clinics. Furthermore, an important function of social service is concerned with the recognition of symptoms in those who sadly need attention but who have never presented themselves for examination, not only in the house which is visited but also in the neighbor's house, and quickly the knowledge of the symptoms of any disease which demands prompt treatment filters through a crowded street. Such a disease is chronic glaucoma, with its long prodromal period, just the period during which the disease can be stopped before it has produced changes that are practically irremediable.

Therefore I suggest that a national committee for the prevention of blindness should be in relation with a social service as part of its equipment, whose workers should specialize in ocular diseases and who should in this respect assist in the extension of this work of the hospital physician into the life and home of the patient, and who would be attached to eye clinics and dispensaries which cannot afford the important help that comes from trained service of this character.

And this is in effect what the National Society is doing in its cooperative work with the Massachusetts Eye and Ear Infirmary and the Department of Ophthalmology of Harvard Medical School where the effect of adequate social service in follow-up work in the control of glaucoma is being studied. Over 700 cases of glaucoma are now under supervision—quite the largest glaucoma clinic not only in this country but, considering its special laboratories, in any land. Similar cooperation between many other ophthalmologic clinics, social service departments and organized societies for the prevention of blindness are in operation and should be extended.

The work of Dr. George Derby and his associates in the study of the light-sense in normal and early glaucomatous eyes, too technical to discuss at present, is bound ultimately to be of the greatest service in the early detection of this impending disease, and bound to mean much in the prevention of sight degradation and blindness from this preventable cause.

There is no doubt that in public (hospital) and private practice, patients with various types of chronic glaucoma are reporting for examination each year in greater numbers. Whether this indicates an actual increase in the incidence



of glaucoma is not certain. It well may be that an increased knowledge of the symptoms of early glaucoma are more familiar to physicians in general practice than formerly, and that they are more apt to refer patients with "suggestive signs" for ocular examination.

The improvement in ophthalmological instruction in our medical schools is an additional factor. Certainly it is unusual at present to find a patient blind or practically blind from glaucoma who has been told to wait until his nonexistent cataract was ripe and ready for operation,—an incident of not infrequent occurrence in days gone by.

It took a good while for the knowledge that a large percentage of headaches unassociated with acute illness or toxemia are due to eyestrain; but now the knowledge is common property and the results correspondingly satisfactory.

We cannot expect the information with respect to early glaucoma to be as widespread but we do know that acquaintance with it is definitely increasing, and it should be part of our duty, physicians and well-informed laymen, to see that proper publicity in this respect is active and to support the various organized efforts in their publicity campaigns and cooperative work.

Time and space do not permit a discussion of what has been aptly described as "conserving the sight of the worker." But I beg to convey my congratulations in that the St. Louis Safety Council and the National Society for the Prevention of Blindness are cooperating in the work of saving eyesight in industry, and that the National Society and the National Safety Council are united in studying the effect of mechanical safety devices in protecting eyes in the various industrial plants.

I should like to say a few words concerning the admirable results in checking the ocular disaster formerly so common as the result of overenthusiastic celebration of our national Fourth of July holiday.

Not so many years ago hospitals were wont to prepare for accident cases on this day, almost as if a battle were impending. This is practically a thing of the past, thanks to the influence of publicity by the newspapers, the General Offices of the American Medical Association, the activities of organized associations for the conservation of vision, and such work as Mr. S. M. Green, of the Missouri School for the Blind, has in preparation, namely, that the Safety Council Committee of the St. Louis Society shall cooperate with the Safety Council of St. Louis in proposing suitable ordinances regulating the sale of explosives.

I believe that an illustration in the publication *Life* of a lad lying on a couch and over him bending his agonized parents, the boy's eyes bandaged, never again to be "the healthy, happy eyes of childhood,"—an illustration reproduced each year,—represents one of the very best things *Life* has done, and was, and is, a potent influence in this type of conservation of vision and the prevention of blindness.

During recent years there has not been a single admission to the Missouri School for the Blind due to injuries received from what Mr. Green aptly denominates "Fourth of July explosions."

In Overbrook, during the last decade, of the sixteen children admitted because of blindness from injury not a single one had been caused by traumatism incident to Fourth of July celebrations.

The law has driven from the market a certain type of toy pistol which in the hands of children was the cause of many disasters, ocular and otherwise. I wish an equally potent law would drive out of existence "darts" and a certain type of air rifle which has destroyed many an eye. Let the children play Indians, but not with dangerous weapons of this character.

Before concluding these brief references to eye injuries, a word should be said about sympathetic ophthalmia, most likely to arise when the wound passes through the danger zone of the globe followed by an infective iridocyclitis and more apt to occur in children than in adults, although no age is exempt. The caution which deserves emphasis is, that all wounded eyes shall have expert attention and treatment and should not pass from such observation until all danger of an inflammation likely to be transferred to the fellow eye has passed; that the sympathetic inflammation may appear (rarely) as early as two weeks after the primary injury, but that especially dangerous is the period between the sixth and the twelfth week.

Once established, this affection is followed by blindness, except in comparatively rare circumstances, and it should be a sacred duty of the physician in attendance to take every precaution because, if the injury is severe and inflammation has supervened, they may indicate the excision of the primarily affected eye.

You are all familiar with the significance of "sight-saving" among school children, with the gratifying development of sight-saving class work and with the training required by teachers to whom such work must be entrusted. As you know, these matters obtained a prominent place on the program of the Annual Confer-

ence of the National Society for the Prevention of Blindness.

It is a subject of large importance and requires constant study of the technic in its varied relationships, to which time permits only a brief reference. You doubtless are acquainted with early efforts along this line in Boston, in Cleveland, where Mr. Irwin worked so effectively, in Toledo and in Cincinnati.

In my own state we are much beholden to Mr. O. H. Burritt and Dr. T. B. Holloway of the Overbrook School for their insistent labor along these lines.

And yet much remains to be done. The Commission to Study Conditions Relating to Blind Persons in Pennsylvania stressed the importance of this work and gathered information which indicated a marked deficiency in the number of sight-saving classes required in the circumstances. And in a recent publication of the National Society for the Prevention of Blindness occurs this significant paragraph: "The number of sight-saving classes in the United States has grown from 305 in 1928 to 350 by December 31, 1929. These 350 classes are distributed in 95 cities and 21 states. The number of sight-saving classes still needed is estimated to be 4,650. No wonder Mr. Burritt appeals for ever-increasing efforts to meet the needs of the situation.

This appeal is emphasized by an important observation made by Mr. Burritt "that schools for the blind throughout the country tend to admit pupils having vision above the minimum set by the ophthalmologists." His estimate is that at least 5 per cent—more likely 10 per cent—of pupils in schools for the blind in the United States are "misfits" in these schools because of the possession of too much vision. Such pupils should, of course, be educated by the methods employed in the sight-saving classes, and represent another reason for the future development of this important effort.

Thus far this essay has concerned itself with some of the coordinated efforts of various agencies to prevent visual degradation and blindness and with the gratifying success which has thus far been achieved.

Each year we have displayed an increasing earnestness in advancing our cause, in rendering our service more effective, and in stimulating the public interest in this momentous work.

Why should we not go a step further and take into consideration the establishment of an "Institute for Research in Blindness and Its Prevention?"

We have institutes for medical research of inestimable value in the onward movement of medical achievement. Why not a similar Institute for Research in Blindness?

Such an institution should be national in character and be so organized as to be in full cooperation with schools and institutes for the instruction of the blind,—the National Society for the Prevention of Blindness, the American Foundation for the Blind, and all other similar agencies in the country.

This is not a new thought or suggestion. Eleven years ago an exhaustive study of blindness and its prevention in our country was made by representative men and women selected by the management of the Red Cross Institute for Blinded Soldiers at Baltimore.

Some of the problems restudied were: the economic possibilities of the blind; the annual cost to the nation in maintenance and loss of earning power of our blind population; the character and efficiency of workshops for the blind; the so-called traditional vocations of the blind and new self-supporting occupations for the sightless; schools which should be available for those who intend to devote their lives to the instruction of those who have lost their vision; sight-saving classes in our public schools; and methods of preventing ocular injuries in the industries.

Naturally, these investigations were largely concerned with the problems which pertain to the adult blind, but they stimulated the thought that in the widest acceptance of the term an institute such as has been referred to should be established and, as already stated, be in co-ordination with other agencies with similar obligations.

To this end Dr. James Bordley, then director of the Institute at Baltimore, prepared a tentative plan for the development of such a research institute. Briefly, this plan contemplated an institute with three main departments, which at that time we designated as (1) a Department of Conservation of Vision, equipped with research laboratories concerned with disease and accident prevention, with the study of sight-saving classes from the standpoint of the student and the teacher, with the development of a cooperative technic with medical societies, industrial surgeons and all organizations dealing with any phase of sight-conservation.

(2) A Literary Department, being a place of classified record of all subjects pertaining to blindness and its prevention, and prepared to maintain a complete reference library.

(3) An Experimental Department, concerned with experimental educational methods; the relation of medical physics to blindness, and studies from the standpoint of psychology.

An additional department would be necessary which may be named a Hospital Ward,



where patients referred for special investigation could be temporarily housed.

This is, as you observe, an ambitious plan, and to carry it out would require a very large endowment. At the time of which I speak Dr. Bordley and I endeavored to interest one of the great Foundations in this matter from the financial standpoint, but without success.

I am quite aware that an answer to these suggestions readily presents itself in the entirely accurate statement that all these matters have received, and now more than ever are receiving attention, admirable attention, from those organizations and agencies which have long been in the field.

But a research institute of the character described would bear the same relation to specialized study of the problem of blindness and its prevention that an institute of medical research does to medical education, effort and advancement.

My chief object in referring to this matter is to suggest that a careful investigation of the subject should be made by a committee of men whose training would enable them to decide whether or not such a research institute would be of lasting advantage beyond that which now exists in already established agencies, be, in short, a real help in advancing our work and adding to our knowledge of blindness and its prevention.

Such a committee might be composed of the principals of the three oldest schools or institutions for the instruction of the blind of our country: The New York Institute for the Education of the Blind, the Perkins Institute and the Institution for the Instruction of the Blind at Overbrook, all of which within the next two years will celebrate their hundredth anniversary; the director and medical director of the National Society for the Prevention of Blindness, and some highly qualified physicians, for example, Drs. Luedde, Lamb, Wilder, Jackson, Posey, Howard, Holloway and Derby.

Such a committee, after a careful survey of the situation, could decide whether the plan is worth pursuing, and if so organize an effort to secure funds for the erection of the building and for a liberal endowment. If not, the matter would end; but the time devoted to the investigation would not have been wasted for there is no doubt the studies would reveal new and advantageous methods in our work, great and glorious as it is, for the conservation of the priceless heritage of sight and the refitting of the blind and the blinded.

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## SYMPOSIUM ON CONTAGIOUS DISEASES

### THE DIAGNOSIS OF DIPHTHERIA \*

JOHN ZAHORSKY, M.D.

ST. LOUIS

There are two main characteristics of the diphtheritic process which serve as a guide in the diagnosis of this disease. The first is the appearance of the pseudomembrane; the second is the gradual occurrence of a stenosis in the respiratory canal. We have therefore two kinds of cases, those in which an exudate is visible, and those in which no exudate is visible.

Let us consider the visible pseudomembrane. It begins as a small exudate, perhaps not larger than a pin head. It enlarges and thickens, is grayish-white in color and adheres firmly to the mucous membrane. When it is forcibly removed it presents the toughness of a fibrous clot, not pultacious, not mucilaginous; hence it is called a pseudomembrane. To the experienced eye the pseudomembrane may be absolutely diagnostic even after a short period of development. Unfortunately, the primary spot may be multiple and resemble a follicular tonsillitis, or the infection may begin in several follicles of the tonsils, or the primary diphtheria process may be associated with another infection of the tonsils. The appearance of the throat, then, becomes atypical and mistakes are constantly made. The color of the exudate may not be grayish-white, but may be yellowish-white or a dirty gray. Then there are other tonsillar exudates caused by other bacteria which are not pultacious but have a tough consistency not unlike a diphtheritic pseudomembrane. It may be truthfully stated that only in the minority of cases can a diagnostic report be made on the first day of the disease. On the other hand, if the disease has persisted for two or more days the thick grayish membrane covering both tonsil and adjacent structures is reliably diagnostic.

For therapeutic reasons a diagnosis must be made the first day, or at least not later than the second day.

#### THE SUSPICIOUS THROAT

The practitioner must have in mind the "suspicious throat." The patient's throat shows at least one of several spots of exudate which has a pseudomembranous appearance, or a pseudomembranous patch appears on the soft palate, or on the walls of the larynx or in the

\* Read in the Symposium on Contagious Diseases at the 73rd Annual Meeting of the Missouri State Medical Association, Hannibal, May 12-15, 1930.

nose. Certain combinations become suspicious throats. Thus, an acute laryngitis with hoarseness and aphonia and one or more gray deposits on the tonsils are suggestive. The sudden appearance of postnasal blocking with a white streak in the lateral wall of the pharynx, a common appearance in nasopharyngeal diphtheria, is suspicious.

#### THE SUSPICIOUS NOSE

The diphtheritic process in the nose is fortunately slow in its progress. A typical case with a tough gray membrane covering the septum on one or both sides is diagnostic, but as a rule we do not see a primary nasal diphtheria until after several days have elapsed. The suspicious signs are, repeated bleeding from the nose, or bloody mucopus forced out, or a small mass of fibrin blown out from the nose. Careful inspection of the nasal cavity in these cases usually shows a deposit of pseudomembrane, but in some cases none is visible. As diphtheria may occur outside of the respiratory tract, there are other suspicious lesions which have to be noted. Thus we say that the acute conjunctivitis which shows a membrane deposit adhering to the inner surface of the eyelid is suspicious. The pseudomembrane may be found in the genitals or wounds of the skin, in ulcers produced by chicken pox, and more rarely at the angles of the mouth.

Then the pseudomembrane may not be visible. This occurs in tracheal, bronchial and primary laryngeal diphtheria. It may occur in nasal infections. In primary postpharyngeal diphtheria it is not visible until the membrane spreads to the pharynx. At this time laryngoscopic and pharyngoscopic methods may detect the pseudomembrane early, but the practitioner cannot use these methods ordinarily in routine work. They are difficult procedures to use in the young child. Whenever the pseudomembrane is not visible, but increasing symptoms of stenosis appear in the larynx, bronchi or pharynx, the suspicion of diphtheria must always be entertained.

The acute laryngeal stenosis in the young baby offers a diagnostic puzzle of the first order. You are called to a child who has a hoarse cough, slight aphonia, or at least a hoarse cry, a distinct laryngeal stridor and some dyspnea as shown by a retraction of the suprasternal space with each inspiration. You know that the larynx is the seat of an inflammatory process. If it is diphtheritic, antitoxin should be injected at once; if not diphtheritic, other therapeutic measures are sufficient. Culture takes time and is notoriously unreliable in laryngeal diphtheria. The practitioner must depend on his professional judgment en-

tirely. In this, he must consider first the other members of the family. Are one or more suffering from a grippal infection, or sore nose or throat? If others in the family have some form of acute respiratory infection, the probabilities are that the baby has the same infection. Is diphtheria present in the community, and what opportunity has the baby had of acquiring the disease? We have always had the healthy diphtheria carrier to consider. Can the baby be carefully watched?

For example: I injected antitoxin in a baby with acute laryngitis because the patient lived at such a distance that it was impossible to see the child again for 24 hours. On the other hand, another severe laryngitis was seen several times a day and late at night and no diphtheria antitoxin was administered. It has been shown that other bacteria,—streptococci, pneumococci and the micrococcus tetragenous—can produce a severe croup which is indistinguishable clinically from the membranous form. In babies these may be the stubborn form, lasting for several days. A differential sign of some value is the absence of the voice. Croup with complete aphonia must always be considered diphtheritic. Another valuable sign is expectoration. If the child coughs hard when looking at the throat and some mucopus is expelled from the larynx that is strong evidence that the process is not diphtheritic.

The greatest difficulty is encountered in the diagnosis of primary tracheal or bronchial diphtheria. These cases are fortunately rare, but in any obscure suffocative bronchitis the possibility of a diphtheritic infection must be considered. The diagnosis is only made when the child expels a cast of the bronchi, or the child lives until the larynx becomes invaded.

Of great clinical interest is the diagnosis of a previous diphtheritic infection. Thus, in acute paralysis of one or more ocular muscles, disturbances in deglutition, weakness of the extremities, and other manifestation of a peripheral neuritis the possibility of a diphtheria always merits consideration. In most cases we have to depend on the history of the case; in many a nasal and throat culture may reveal the presence of the Loeffler bacillus.

The onset of an acute myocarditis is often traceable to a previous diphtheritic process. This disease presents certain peculiarities which are often characteristic, namely, the tendency to arrhythmia, failure of the peripheral circulation, great pallor, without a tendency to edema, and without precordial distress. As to cultures a few words are sufficient. A culture should always be made in order to complete the diagnosis. Yet the practitioner must not depend on this before instituting active treatment. A



negative report must be given weight in proportion to the skill with which the culture is made. Has the swab been applied to the proper place? Did you obtain some material from under the exudate? Was the culture medium suitable? Was it properly incubated? Experience has shown that many mistakes can be made even in experienced and competent hands. The culture merely shows the presence or absence of diphtheria bacteria. They may or may not be virulent. Westbrook has classified diphtheria bacilli into a dozen groups, showing a granular, barred or solid structure. It behooves us, therefore, to consider all forms of diphtheria-like organisms as a possible source of danger to others, but the mere presence of such micro-organisms should not induce us to make the diagnosis of diphtheria when clinical evidence does not sustain it.

I have seen several cases of sore throat and follicular tonsillitis which on culture showed diphtheria bacilli yet the patient had not the symptoms of diphtheria. No antitoxin was given and the subsequent course proved that no diphtheritic process was present. The culture then is mainly for the protection of others and as additional evidence of the clinical findings, but it must not take the place of a practitioner's judgment after studying the clinical facts. Diphtheria is one disease in which the diagnosis must be made and therapy instituted independent of laboratory diagnosis.

Modern pediatrics demands another form of inquiry, namely, the diagnosis of susceptibility and immunity to diphtheria. This is accomplished by the well known Schick test. A minute quantity of diphtheria toxin is injected between the layers of the skin. When a local reaction occurs in two or three days the test is positive and the child is susceptible to diphtheria. Every child who has passed through an attack of diphtheria should be tested to ascertain if the disease has produced a permanent immunity. This test is made two or three months after the disease. The test is also made on children over 6 years of age to find out if they have acquired an immunity. The young children are generally susceptible and the test is superfluous. Six months after artificial immunization by the toxin-antitoxin, or the toxoid preparation, a child should be subjected to the Schick test in order to ascertain whether our immunization procedure has been successful.

In large cities hospitals for the isolation and treatment of diphtheria are generally available. Here the highest skill and most modern facilities for the diagnosis and treatment of diphtheria are supplied. Special attention must be directed to the use of laryngoscopy in the diag-

nosis of laryngeal disease. From the Willard Parker Hospital it was reported that not more than 40 per cent of cases sent in as laryngeal diphtheria are due to the Löffler bacillus. It cannot be too strongly emphasized that hospital treatment for diphtheria would become almost extinct if the practitioner would promptly treat all suspicious cases of diphtheria as Löffler infections and take great pains to immunize all children under his care. We cannot make a diagnosis of diphtheria at once but we can suspect its presence and act on suspicion. I offer a few brief reports on clinical cases to illustrate the difficulties of diagnosis.

#### REPORT OF CASES

Case 1. A boy 9 years old took sick with a high fever ( $104^{\circ}$ ). The only other symptom was a blocking of nasal breathing. The turbinates were swollen but no secretion nor exudate was visible in the nose and throat. He was treated symptomatically for two days when he suddenly hawked out a piece of grayish-white pseudomembrane from the posterior nares through the mouth. The membrane could be nothing else but diphtheritic. A culture from the nares confirmed the diagnosis of diphtheria.

Case 2. This was a similar case. A boy 12 years old had a rapid occlusion of the posterior nares and a very moderate temperature. No exudate was visible on the first day but nevertheless he received the antitoxin treatment; on the second day a small grayish-white deposit appeared on the palate. The culture showed the Klebs-Löffler bacillus.

Case 3. An infant 1 year old began with symptoms of catarrhal croup. The general symptoms were very mild. The laryngeal stenosis was no better the next day and a culture was returned negative to diphtheria. On the third day as the symptoms became severe antitoxin was administered and the baby had to be intubated. The baby died. At the postmortem a membrane was found in the trachea and Klebs-Löffler bacilli were cultured from it. This experience has caused me to give diphtheria antitoxin promptly in all cases of laryngeal stenosis not yielding in 24 hours to drug therapy.

Case 4. An infant 6 months old began with slight nasal bleeding which persisted for several days. No fever was present and the infant felt very well. No exudate was visible, only inflamed congested turbinate bodies. As no other cause of the bleeding except diphtheria was suggested, diphtheria antitoxin was administered. A diphtheroid bacillus was isolated from the nose. The nose healed promptly.

Case 5. An infant 2 months old was brought to the office. The mother stated that the child had been circumcised three weeks before but it had never healed. Examination showed a swollen edematous penis. At the mucocutaneous junction a distinct membrane was visible. Another membranous area existed on the dorsum of the penis. Diphtheria antitoxin cured the case promptly. A culture was positive.

Case 6. A boy 7 years old was brought to the office because he had a persistent gangrenous ulcer of the leg following chicken pox. He showed also myocarditis and peripheral neuritis. Diphtheria was suspected. A culture made from the necrotic ulcer

showed virulent diphtheria bacilli. A large dose of antitoxin failed to save his life.

Case 7. A girl 8 years old presented a large pseudomembranous patch on one tonsil. She had vomited and suffered from a high fever. A full dose of diphtheria antitoxin was administered. The next day she broke out with a scarlet fever rash and the disease ran the typical course of scarlet fever. Repeated throat cultures were negative.

Case 8. A girl 7 years old presented an ugly ulcer on the tonsil covered by a dirty gray membrane. Antitoxin was administered yet cultures remained negative. On smear the *Bacillus fusiformis* and *Spirilla* were found present. This was a case of Vincent's angina.

Case 9. A boy 6 years old presented a dirty gray membrane on one tonsil. There was moderate fever and glandular enlargement. Antitoxin was administered but the membrane spread over both tonsils and even on the pharyngeal wall. Another dose of antitoxin was given. In all he was given 20,000 units and gradually recovered. Two different cultures made from his throat were reported negative. A third culture when the membrane had almost disappeared revealed the Klebs-Loeffler bacillus.

Case 10. A boy 3 years old. The mother returned home in the afternoon and found her child breathing heavily. She sent for her family physician. The physician detected a distinct laryngeal stridor, aphonia and marked dyspnea. There was no fever. He injected a full dose of antitoxin. Two hours later that child had a severe coughing spell and ejected a piece of chicken bone. The symptoms were relieved at once.

Case 11. A girl 6 years old had a typical attack of faucial diphtheria and was treated for this successfully by antitoxin. Two months later she developed another sore throat with a follicular exudate. The culture was positive to the Klebs-Löffler bacillus. Nevertheless, the clinical course was that of tonsillitis and no antitoxin was given.

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## TREATMENT OF DIPHTHERIA \*

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The fundamental importance of antitoxic serum in the treatment of diphtheria is accepted by the medical profession without question, but there is apparently still some confusion about the importance of its early use, the size of the adequate dose and the choice of a method of administration. Another question which frequently arises is in reference to the safety of its use.

The chief object of antitoxin therapy is to reach the toxin and neutralize it before it becomes fixed in the tissues. Therefore it must be given at the earliest possible moment and often before the diagnosis is clinically certain. Even in individuals who have received toxin-antitoxin or toxoid one cannot be certain that they are completely immunized and the serum

should be given unless they have had a definitely negative Schick test. The mortality from diphtheria before the use of antitoxin varied from 30 per cent in older children to 60 per cent in young infants, whereas Park<sup>1</sup> in New York City found that a single death from the injection of antitoxin occurred in over 70,000 therapeutic and prophylactic injections. It is therefore easy to compute the relative risk the patient runs when one fails to give antitoxin in a case of diphtheria as compared to that which the physician produces in giving an occasional unnecessary dose of serum. The risk from failure to give antitoxin is thus from twenty to forty thousand times as great as that produced by a needless dose of serum. Moreover it has been shown that the mortality rate increases rapidly with each day's delay in giving antitoxin. Thus a mortality rate of 1½ per cent on the first day (probably too high because of the possibility of longer duration than alleged) was seen to increase to 3 per cent when antitoxin was given on the second day of the disease and to 7 per cent on the fifth day. Thereafter the rate remained practically the same, apparently uninfluenced by the administration of antitoxin.<sup>2</sup>

Theoretically, one or two units of antitoxin would suffice to protect an individual against the production of a lethal dose of toxin if it could be made available at the site of the local lesion in the throat, but relatively excessive doses are used to insure general diffusion and for the pressure effect which increases the rate of absorption. The following average dosage in units for age, if given early and at one time, should afford the desired protection:

Birth to 2 years.....	3,000 units
2 to 5 years.....	5,000 units
5 to 10 years.....	10,000 units
Over 10 years.....	15,000 units

Experience seems to indicate that larger doses do not demonstrably affect the toxic injury to the tissues and the use of large doses of serum seems to increase the tendency of some individuals to develop serum sickness.<sup>3</sup>

In general there is little danger from deterioration of antitoxin, as Anderson<sup>4</sup> has shown only 44 per cent loss of potency in three years at room temperature and most manufacturers allow for this loss by preparing a 25 to 50 per cent greater strength in antitoxic units than appears on the label. Furthermore, all biologicals now bear an expiration date.

The commonest reasons offered for repeating antitoxin are, (1) continuance of fever, (2) the increased spread of membrane, and (3) persistence of obstructive symptoms in the laryngeal form of the disease.

In the first instance the fever is simply an

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indication that necrotic matter is being absorbed and will continue until the local inflammatory process is healing. It may even be increased as the result of the introduction of the foreign protein. Second, by the time antitoxin is given there has already been an invisible spread of the toxin into the neighboring tissues and by the next day the effect of this has become macroscopically apparent by the appearance of additional necrosis. Third, obstruction in the laryngeal type of the disease is due to the shedding of the membrane and to the other inflammatory phenomena of edema and muscle spasm and its continuance does not necessarily mean further tissue injury.

Antitoxin remains in the blood stream and exerts its protective action for about two to three weeks during which time the ulceration is healed and the diphtheria bacilli disappear from the throat. Occasionally, because of some irregularity of the pharyngeal mucous membrane, such as a deep tonsillar crypt, the virulent bacilli are harbored and the patient becomes a carrier.

The treatment of chronic carriers with gargles and the topical application of antiseptics is usually ineffective. Smoothing the pharyngeal surface by the removal of hypertrophic adenoids and cryptic tonsils is ordinarily quite successful. If laboratory facilities are available the organism may be tested for virulence, but the technic is difficult and time-consuming and usually positive anyway in convalescent carriers.

In addition to the importance of giving an ample dose of antitoxin early in the course of the disease, it is equally significant to choose a route of administration that will give the highest concentration in the blood in the shortest period of time. Hence the intravenous route would always be the method of choice were it not for the fact that unpleasant reactions often occur as a result of giving relatively large doses of horse serum by this method. Nevertheless, at least one-third of the full dose can be given this way in the late cases and in the more severe cases seen early if there is no reason to suspect unusual sensitivity to horse serum. Antitoxin may be given intramuscularly in which instance the maximum blood concentration is reached within twelve hours. If given subcutaneously the maximum blood concentration is not reached for about three days which makes this method ideal for prophylactic injection but of no value for therapy. The intramuscular route is therefore the most satisfactory for general use.

Susceptible individuals react to serum injections in two characteristic ways.<sup>5</sup> The usual manner is by the development of the

syndrome spoken of as serum sickness. This appears six to twelve days after the first injection of serum. Although the symptoms are quite annoying the disease is never fatal. The other features of this condition are fever, edema, urticaria, erythema, lymph node enlargement and arthritis. In contrast to this comparatively mild late reaction is the serum accident which comes on immediately with more or less alarming symptoms. The patient becomes restless, apprehensive and pale. Urticaria appears suddenly and is extensive. Coughing, dyspnea and cyanosis quickly follow and the patient becomes weak and may go into collapse. In rare instances death has occurred.

In a tabulation of the recorded serum deaths up to 1924 Lamson<sup>6</sup> found only 41 reports, one-third of which were of individuals known to have asthma or some other allergic manifestation. Only one-fifth of the total had received a previous serum injection, leaving about one-half of the cases without any plausible reason for their sudden termination. The necropsy findings sometimes suggested status lymphaticus, a condition said to be associated with sudden death from any exciting cause. In two of the cases reported rather minute amounts of serum had been injected by the intradermal route. Apparently the true nature of these serum deaths is as yet not fully understood, but their rarity in comparison to the large number of serum injections being constantly given minimizes their importance.

I was unable to find the report of any serum deaths following toxin-antitoxin prophylaxis.

Since most of the serum accidents occur when serum is being administered for the first time it is impossible to know in advance who are the hypersensitive individuals. A history of allergic symptoms, such as asthma, hay fever and hives or of the previous administration of a large dose of serum, should put one on guard, but it does not follow that such individuals will invariably react with shock-like symptoms. Skin tests do not give reliable information on this degree of sensitivity, for even if strongly positive the patient may with caution be given antitoxin without shock. Complete desensitization is too uncertain and requires too much time to be useful in the treatment of diphtheria. It seems a better plan to try a minute dose of antitoxin by a slow absorption route and if no reaction occurs in a given time proceed cautiously to larger amounts by a more direct route, since it is obvious that a very small dose if it produces symptoms is less liable to produce a fatal shock and presents a warning about the extreme hypersensitivity of the patient. The intravenous route

should never be attempted in this group of individuals, nor in any case before some serum has been given by a less direct method and the patient observed for several minutes.

The following procedure based on the above reasoning may be used in the case of an individual with diphtheria and suspected of being hypersensitive: One minim of antitoxin is given subcutaneously. If no reaction occurs in twenty minutes, one-half c.c. can be tried by the same route and after a similar wait one c.c. can be ventured intramuscularly, and this dose repeated every twenty minutes and gradually increased in amount until the full dose is given or a reaction occurs. Full doses of atropine and epinephrine hypodermically can be used to control shock symptoms should they develop.

Complications in cases treated early and adequately with antitoxin are unusual. In fact, the average diphtheria patient seems hardly ill after antitoxin therapy unless there is a cross infection with streptococci or some other organism. However, as the interval between the onset of symptoms and specific therapy lengthens, the danger of circulatory failure and paralysis increases. Occasionally signs of circulatory involvement are observed in well managed cases and earlier than expected. For this reason bed rest is essential during convalescence and especially so if antitoxin is given late.

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## THE PREVENTION OF DIPHTHERIA\*1

ADRIEN BLEYER, M.D.

ST. LOUIS

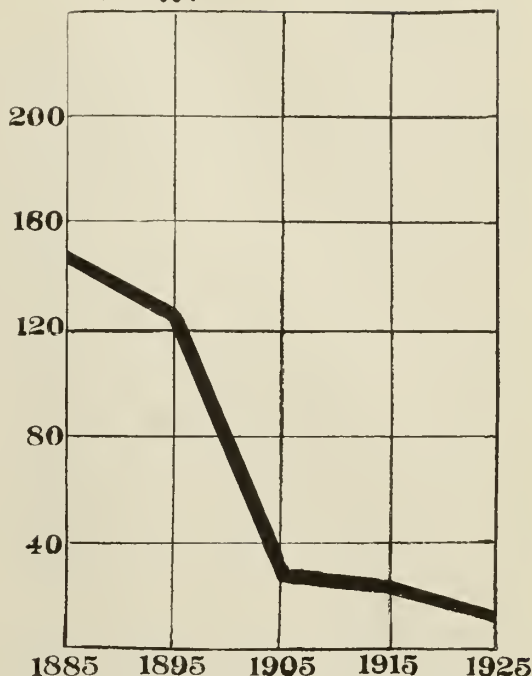
In looking back over the recent history of diphtheria, a chart for New York City just before the discovery of antitoxin is of interest. This is the period 1885 to 1895, seen in Chart 1, when the death rate from this disease ranged from 125 to 145 per hundred thousand of the population. Note the astonishing drop to 30, ten years later, after the introduction of antitoxin.

The first annual publication of death statis-

\* Read in the Symposium on Contagious Diseases at the 73rd Annual Meeting of the Missouri State Medical Association, Hannibal, May 12-15, 1930.

1. From the Department of Bacteriology and Public Health, Washington University School of Medicine.

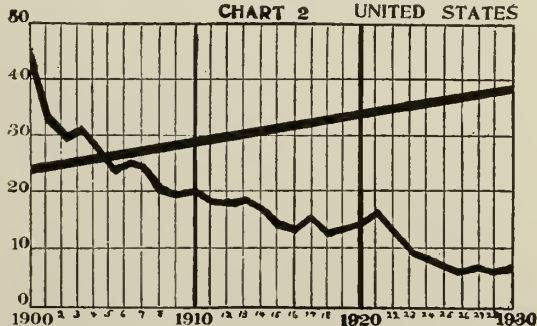
CHART 1 NEW YORK



1. Diphtheria death rate in New York City per hundred thousand of the population. (By permission of Nelson Loose-Leaf Living Medicine, Vol. 7, Chart 6, page 13.)

tics for the United States was put out by the Bureau of the Census in 1900 and data are available since that period. It is seen in Chart 2 that the decline in this country as a whole, which had already set in just before the close of the last century, continued in a most decisive manner. If we divide this falling line, which runs from 1900 to 1928, into periods of ten years we find that the major part of the drop occurred in the first decennial and comprised over 60 per cent of the entire decline to date. Since that time there has been a tendency for the line to flatten, indicating that difficulties are being encountered and suggesting that we will soon reach or may already have reached a point that will be about as far

CHART 2 UNITED STATES



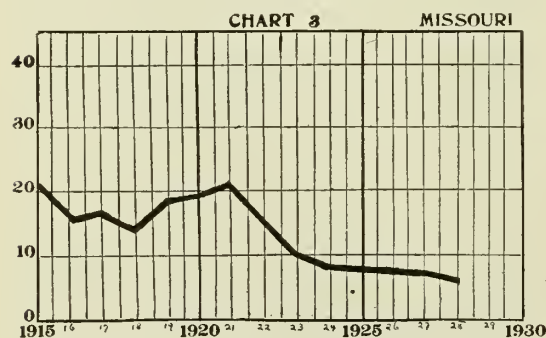
2. Diphtheria death rate in the United States per hundred thousand of the population.



as we shall be able to go with antitoxin in lowering the death rate of diphtheria.

It is noteworthy, as shown by the heavy ascending line in Chart 2, that, although the population of the United States increased from 75 millions in 1900 to 91 millions in 1910, to 105 millions in 1920, and is at present estimated to be in the neighborhood of 120 millions, the drop in diphtheria deaths is being maintained despite the increasing opportunity for exposure of larger numbers of persons. In 1890, a few years before antitoxin came in, there were 38,000 deaths from diphtheria in this country with a population at that time of 63 millions. On this basis, without antitoxin, a yearly toll of something like 70,000 would not be unlikely at present. The actual number is around ten or twelve thousand which may now represent a somewhat fixed point for the country as a whole and suggests that something on the order of a stalemate may have been reached between this disease on the one hand and antitoxin on the other.

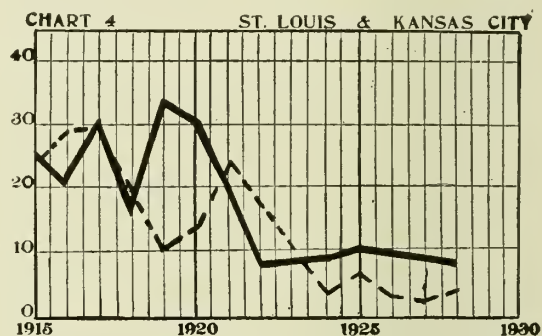
Chart 3 shows the decline in the death rate from diphtheria in Missouri from 1915 to 1928 and shows what high rates may occur at times despite the fact that antitoxin is available. In 1921 the death rate in Missouri was over 20, although the rate for the country at large that year was about 15. For some years now Missouri has been well abreast of the country, and since 1923 well ahead of it; note 5.2 deaths in 1928 as compared to 7.2 for the country as a whole. This record has been consistently held for the past six years, although here again in Missouri the line is flattening out and suggests that it may not be subject to much further decline under the antitoxin system which was essentially responsible for bringing it about.



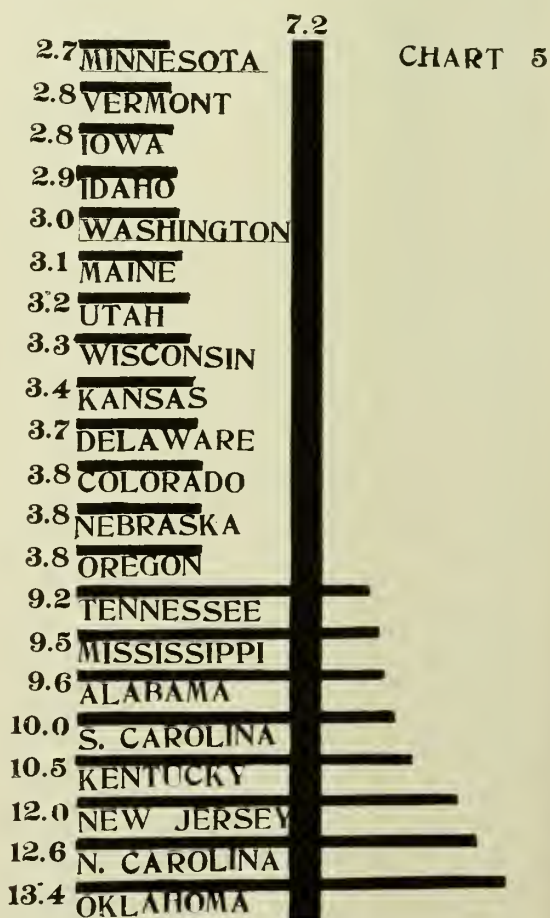
3. Diphtheria death rate in Missouri per hundred thousand of the population.

Chart 4 shows the behavior of diphtheria in the two leading cities of Missouri for the period 1915 to 1928, the solid line, St. Louis, the broken line, Kansas City. The higher death rate in cities than in the state at large is of

course noted and also the occasional periods of great prevalence which occur in populous centers despite the use of antitoxin. In 1919 the death rate in St. Louis was over 33, which corresponds with figures for the United States as far back as the year 1901 when the great drop was just starting. All in all, Kansas City has an almost consistently better record than St. Louis.



4. Diphtheria death rate in St. Louis and in Kansas City, Missouri, per hundred thousand of the population.



5. Geographical distribution of diphtheria in the United States at this time.

Just a word concerning the geographical distribution of diphtheria in this country at this time. Diphtheria is a disease of temperate countries and the North rather than of hot countries and it is somewhat strange to note that, with the exception of New Jersey, its greatest prevalence or rather its highest death rate is now in the South. In Chart 5 the upright line shows the average mortality per hundred thousand of the population of the whole country from diphtheria in 1928 which was 7.2. The upper group of states shows particularly low death rates from this cause, that is, less than 4 and the lower group particularly high rates, that is, above 9. As was said, with the exception of New Jersey, all of the latter are in the South. One might surmise that this is related to a preponderance of diphtheria among colored people, which however does not appear to be the case. In the South as in the North diphtheria deaths occur among the whites.

What part isolation has played in the decline of diphtheria is not very clear. We have no satisfactory curves relating to the incidence and morbidity of this disease which show that isolation has been of importance in any way comparable to antitoxin. Of one thing, moreover, we are quite sure, i. e., isolation has failed to eliminate or seriously control the carriers of this disease; they continue to run to 1 per cent or more of large and small groups of persons taken from the general population during periods of prevalence.

It is very significant that 85 per cent of deaths in diphtheria occur in the first five years of life, that is before children are old enough to spend much of their time away from home or to mingle with the community at large. There is a great deal of significance in this fact because it shows that the infection must be broad enough to be carried out of the general community into the homes, although these members of the community who are themselves exposed and carry it about do not contract the disease. In other words it is the susceptibility of young children and the existence of immunity in later life which dominate the situation and not essentially the matter of exposure at all. Most if not all of us in city life are exposed to diphtheria at some time or other and those who are susceptible get it.

Thus we may minimize the theory of isolation in diphtheria as an institution not any more capable of eliminating this disease or even materially reducing its incidence than is the pest-house capable of eliminating smallpox.

Our clue to this problem is the other way around; not to take the matter of exposure too seriously but rather to develop and make

more efficient Nature's own way of dealing with it by conferring immunity at an earlier age than that at which it usually occurs and by carrying it out in a larger proportion of the population.

Natural immunity, when it comes along, is permanent and, speaking in a general way, so is the immunity conferred by toxin-antitoxin or toxoid. During a recent visit to St. Louis, Dr. Park told us that only three in a hundred of those artificially immunized lose their immunity after ten years, which is a fair duplication of Nature's own scheme.

In going about to accomplish this it is best to make Schick tests to see whether immunization is actually needed in the individual case. In infants, along in the second year, 25 or 30 per cent will be found to be immune. When the youngest child is naturally immune the other ones are very likely to be also. In adults about 65 per cent of those living in cities will give negative reactions, so it is somewhat more desirable to make preliminary Schick tests in older individuals than in the case of babies. Several reports have appeared which show that those who have reached maturity away from cities may continue to show the susceptibility of early childhood. In groups of young women coming to cities to take up the profession of nursing 65 per cent<sup>1</sup> to 70 per cent<sup>2</sup> have been found susceptible.

Another point of interest is that the success or failure of artificial immunization depends considerably upon the age at which it is carried out. If given along about the end of the first year of life, immunity from toxin-antitoxin will probably occur in about 90 per cent of individuals, and if a properly standardized toxoid is used immunity should develop in from 92 to 98 per cent, three doses being used in either case. If used later in life, however, say after sixteen, success will be more likely to run around 80 per cent or 70 per cent or 60 per cent or even less.

The first toxoid used in this country in human beings was by Park's intimate associate in this work, Abraham Zingher,<sup>3</sup> the product being sent to him by Ramon of France. This was in 1925, Ramon's several original contributions having appeared in 1922 and 1923.<sup>4</sup> Zingher's results were excellent and he immediately published an opinion that toxoid seemed to be a better preparation than toxin-antitoxin. After quite a lapse of time, that is, only last year, this experience was confirmed by Weinfeld and Cooperstock<sup>2</sup> and also by Schwartz and Janney,<sup>5</sup> the latter obtaining results exactly similar to those of Zingher by using a toxoid supplied especially for these tests by Fitzgerald and Moloney of the Connaught



Laboratories of the University of Toronto. The impetus given toxin-antitoxin however by Park's epochal discoveries has served to keep this latter product before American physicians, and its use in our country even today is much more general than is the use of toxoid, although, following the example of France where over a million children had already been given toxoid as long as two years ago, and more recently that of Canada where an equally good product has been turned out, there is little question but that toxoid will replace toxin-antitoxin with us also.

There is quite a difference in these two products, with all the advantages on the side of toxoid. Toxoid contains no horse or sheep serum, which is a decided advantage; it is practically atoxic and it is very stable. It is produced by incubating a filtrate of toxin with a small amount of formaldehyde, the most appropriate amount appearing to be 3/10 of 1 per cent. This incubation is carried on at about 40° C. for a month or so, until 5 c.c. will no longer kill a guinea pig. This long incubation reduces toxin to the vanishing point but it does not destroy its antigenic power upon which depends its faculty of producing immunity. This product moreover is not exactly new, toxoid being used for the production of antitoxin in horses as long ago as 1904, the next step being that of Ramon in France who applied it on a large scale to children and suggested the name "anatoxin" by which it is known in that country.

Just a word to emphasize the necessity of making Schick tests routinely some time later than three months after immunization and to recall, as Zingher pointed out,<sup>6</sup> that the toxin content in the Schick test outfits on the open market is subject to wide variations in potency. It is therefore best whenever possible to make the Schick test on a number of children out of the same bottle, with the idea that one of them may give a positive reaction and thus demonstrate the potency present in that particular outfit. A critical review of the Schick test and its application by Sheldon F. Dudley appeared last year and is worthy of study.

It has been said that great and enduring movements gather momentum slowly. William Hallock Park, the outstanding authority in this matter, has been working at it twenty-seven years and has seen it in operation for about half that time. In the neighborhood of two hundred thousand children were immunized in New York City alone last year.<sup>7</sup> His ideas have spread everywhere and everywhere there is approbation and unanimity as to the greatness of his work, but the fact remains that in our own country the total diphtheria

deaths were greater in 1929 than they were in 1928. If it is true that we cannot expect much more of antitoxin than it has already accomplished, and that we cannot look with confidence upon isolation as a means of eliminating diphtheria, it would seem that the best thing for us to do is to make use of these newer weapons and put this thing over in good American style.

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N. B. I wish to thank Mr. T. F. Murphy, Chief Statistician for Vital Statistics of the United States Bureau of the Census; Dr. R. C. Williams, Assistant Surgeon General, Division of Sanitary Reports and Statistics; Dr. William H. Guilfooy, Registrar of Records, Department of Health, City of New York, and Mrs. Naomi P. Goodin, Statistician to the State Board of Health of Missouri, for their courtesy and kindness in providing much of the material upon which this paper was based.

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#### PREVENTION AND TREATMENT OF SCARLET FEVER\*

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The purpose of this paper is to present as accurate an estimate as is possible of the present status in the prevention and treatment of scarlet fever by means of the various sera that have been developed in recent years. Sufficient time has not yet elapsed to settle many of the questions involved and certainly definite conclusions should not be drawn except from the reports of individuals of large experience where all the factors have been taken into consideration.

The various sera that have been developed in connection with scarlet fever are: (1) The Dick test, (2) the Schultz-Charlton blanching test, (3) active immunization by means of naked toxin, (4) active immunization by means of ricinoleated toxin, (5) passive immunization by means of antitoxin, (6) treatment of scarlet fever by means of antitoxin.

The Dick test is a reliable means of deter-

\* Read in the Symposium on Contagious Diseases at the 73rd Annual Meeting of the Missouri State Medical Association, Hannibal, May 12-15, 1930.

mining susceptibility to scarlet fever. The material should be properly prepared and accurately standardized. The test is entirely for the purpose of determining susceptibility to scarlet fever and is not a diagnostic agent.

The Schultz-Charlton blanching test is conceded to be a reliable diagnostic aid. The test consists in the intracutaneous injection of two-tenths of a cubic centimeter of convalescent serum or of potent scarlet fever antitoxin at a point where the rash is thickest. If scarlet fever has produced the rash it will be neutralized by the antitoxin in from 18 to 24 hours causing the rash to disappear in the immediate vicinity of the injection. The local blanching is best seen by standing some distance away from the patient.

Active immunization against scarlet fever is possible by naked toxin as recommended by the Dicks or by Larson's ricinoleated antigen. Active immunization against scarlet fever is not analogous to active immunization against diphtheria; protection must be both antitoxin and antibacterial.

The incubation period of scarlet fever being two to five days, prevention of the disease from an exposure cannot be secured by active immunization.

To sum up active immunization in scarlet fever: (1) The giving of 100,000 or more skin test doses of toxin in five injections will produce an immunity in practically all susceptible persons for at least two years. The reaction from these doses is for the most part local and compares in intensity with typhoid inoculations. (2) Of Larson's antigen containing 3,000 skin tests of toxin and one thousand million killed streptococci in each cubic centimeter, one to two doses are given intramuscularly. (3) With either method patients should not be considered immune until proven so by a negative Dick test. (4) The incubation period of scarlet fever being two to five days, prevention of the disease from an exposure cannot be secured by active immunization by either method.

The question of how extensive a program of active immunization should be undertaken by the medical profession is an important one. It is undoubtedly advisable to immunize all susceptible persons, such as nurses and interns, who come in intimate contact with scarlet fever.

Children in institutions where outbreaks of scarlet fever might occur ought to be protected against the disease, and the occurrence of several cases of scarlet fever in a school or in a neighborhood justifies toxin administration to the other children in close proximity.

When a case of scarlet fever occurs in a

family where the inmates must be more or less exposed during the period of quarantine and afterwards, Dick tests should be done and active immunization started on the susceptible ones.

Passive immunity can be conferred by giving convalescent serum or a potent scarlet fever antitoxin. The immunity occurs immediately and lasts as long as antitoxin remains in the body, which is from two to three weeks. Scarlet fever antitoxin produces such severe serum reactions in such a high percentage of the cases that, except in unusual circumstances, it is better to risk an attack of the disease. Such authorities as Toomey and Hoyne express themselves as being unimpressed with the value of scarlet fever antitoxin used prophylactically.

The use of blood serum from persons who have recovered from scarlet fever may also be considered. Seven and one-half c.c. of pooled blood serum from donors who had scarlet fever within a year or less protected 85 per cent from developing scarlet fever. Immunity lasted three or four weeks.

Prophylaxis is particularly valuable for young children who have been recently exposed to scarlet fever. It is recommended for the infirm. Prophylaxis has been found useful in checking outbreaks of scarlet fever in hospitals and other institutions.

The chief value of antitoxin in scarlet fever is in the treatment of severe cases. The beneficial effects that may be expected are a more prompt subsidence of temperature, a quicker disappearance of the rash, a lessening of the toxicity and perhaps preventing some of the complications.

Scarlet fever antitoxin is standardized in units by the method established by the United States Public Health Service. A unit is defined as that amount of antitoxin which will neutralize 50 skin doses of scarlet fever toxin in the majority of human subjects injected intradermally. The dosage of antitoxin should be sufficient to establish a considerable excess in the blood of the patient as early as possible in the disease course. The amount of antitoxin required for a case will depend upon its severity, the character and extent of the inflammatory processes and the size of the patient. Scarlet fever antitoxin is given intramuscularly. In very severe cases intravenous injections may be indicated. Administration is followed in a variable percentage of cases by serum sickness. This possibility should always be kept in mind and if present 15 minims of adrenalin given.

Hemolytic streptococcus growing in the throat produces a soluble circulating toxin



which is responsible for the rash, fever, vomiting and other toxic symptoms characteristic of the first four or five days of the disease. After the fifth day of the disease antitoxin is developed in the body and subsequent use of the serum is probably useless. Neutralization of the toxin is accomplished by antitoxin and recovery ensues. In the majority of cases of scarlet fever this constitutes the entire disease picture. Unfortunately, the neutralization of its toxin does not prevent the hemolytic streptococcus from further invasion of tissue, as in the case of diphtheria. Practically all the complications of scarlet fever are due to the spread of the bacteria themselves. Thus, otitis media, mastoiditis, cervical adenitis, sinusitis, and septicemia are due to the presence of hemolytic streptococcus in the involved tissue. Up to the present time there has been developed no antistreptococcic vaccine or serum which has any constant, proven, specific effect upon any of the streptococcic infections. It should be clearly borne in mind that scarlet fever antitoxin exerts its influence only in the toxic phase of the disease. Septic processes once started will proceed unmodified by the presence of antitoxin. Since it is the septic condition that produces the majority of deaths in scarlet fever it is reasonable to suppose that the mortality rate of the disease will not be greatly affected by the use of antitoxin.

We know that a special series of streptococcus is the cause of scarlet fever, that it produces a specific toxin which causes a definite skin reaction in susceptible individuals and that it excites the formation of antitoxin in human beings and horses which may be used for the prevention and treatment of the disease.

The practical application is as follows: (1) The Dick test to determine susceptibility. (2) Immunization of susceptible individuals and repeating the test to check the success of immunization. (3) Antitoxin in severe cases. (4) Means of arrest of outbreak of the disease. Antitoxin or convalescent serum for those having the disease or possible nose and throat cultures. The institution of immunization in one week.

The toxic phase of the disease can be influenced; the bacterial phase once established cannot. The use of scarlet fever sera is still in the experimental stage and extravagant claims to the laity should be avoided lest their confidence in all sera be shaken.

The opinions of my colleagues in Kansas City regarding serum used as a preventive and therapeutic measure follows:

DR. HUGH L. DWYER: In 1926 I immunized 36 children with three injections of scarlet fever

streptococcus toxin, using the three ampule doses, approximately 30,000 S. T. D. No Dick tests were made except in a very few of these children to determine whether they were susceptible to scarlet fever before the inoculation or whether they were rendered negative after the injections.

I have made some effort to follow-up these children and during the three years following the administration of the toxin, in which time we have had one epidemic of scarlet fever, only one child contracted the disease.

Since that time I have been using the five doses of Dick toxin, a total of 115,500 S. T. D. In some cases I have followed them up with the Dick test and find that they all made a negative Dick. I have reason to believe that this sterile toxin in the doses now used produces an immunity to scarlet fever. Mild local and general reactions are not infrequent but of no consequence.

DR. PHILIP S. ASTOWE: About five or six years ago we repeated some of the early work of the Dicks and at that time we tested some six hundred cases in the parochial schools of Kansas City with the Dick Toxin and immunized close to one hundred cases with toxin which was supplied to us by the Mulford Laboratories.

After a period of observation of several years since that work was done, I feel that immunization against scarlet fever has a definite field of usefulness in pediatric practice; also in the immunization of doctors and nurses who are in contact with contagious diseases.

With the new preparations the immunizing qualities have been increased and the results should be even better. They are as reliable as the results obtained with toxin antitoxin in diphtheria immunization. The error which has crept in the work of scarlet fever immunization has largely been due to faulty technic of the Dick test and its interpretation. One cannot interpret the readings of the Schick and Dick tests on the same basis and many cases of positive Dick tests are called negative, when as a matter of fact they have been positive. It is this type of case which subsequently contracts scarlet fever and mitigates against scarlet fever immunization.

As regards scarlet fever antitoxin, I feel that its use should be reserved for desperately ill cases because the serum reaction which one obtains is at times worse than the disease itself.

DR. JOHN AULL: Owing to the lack of faith which I have in the efficacy of scarlet fever antitoxin as a preventive against scarlet fever I have had no first hand experience with the use of it.

DR. HARRY BERGER: (1) Prophylactic immunization,—absolutely no. (2) Antitoxin in treatment is very helpful especially in septic cases. I do not use it routinely in mild cases.

DR. JOSEPH B. COWHERD: While I have not used scarlet fever serum extensively, I believe I have had enough experience with it to go on record against its use both in prevention and treatment. My experience with the vaccines to immunize actively against scarlet fever has been equally discouraging.

DR. CHARLES J. ELDRIDGE: I have used the Dick scarlet fever antitoxin in the treatment of scarlet fever with very satisfactory results. I use it in those definite cases which have the characteristic rash and are toxic, but not in the very mild cases. I do not use the prophylactic dose of antitoxin for the contacts. Isolation and the

therapeutic dose if the contact develops the disease.

I can say nothing about the prevention of scarlet fever with the Dick or other toxins because I have not used them.

DR. FRANK C. NEFF: In my opinion a preliminary Dick test should be made on the skin to determine susceptibility. With the material which I have been using during the past year I have reached the conclusion that the test is specific and reliable.

Immunization with the Dick toxin solution for permanent immunity is worthy of trial. Although only a few years have elapsed since the method was begun I believe that with the dose now used the method is successful and advisable. I have used it extensively during 1929 and 1930 and retesting in from 2 to 3 months after the last dose. I cannot state how many will become negative as we have not yet retested all. I feel, however, that there will be a high percentage of successful immunizations.

I do not use scarlet fever antitoxin for immunization because I dislike to sensitize the patient with serum. In cases of scarlet fever that begin severely I have used one or two doses of the serum with beneficial results upon the severity and complications. In mild cases I would not use it because the resulting serum sickness is worse than the mild scarlatina.

DR. C. B. SUMMERS: Scarlet fever antitoxin has given me excellent results. I feel that it is indispensable in the treatment of severe or moderately severe scarlet fever cases.

DR. STEPHEN A. STADLER: On account of the probability of reaction and the uncertainty of results I have not tried to immunize against scarlet fever. I have found no occasion to use the serum for treatment.

DR. DAMON WALTHALL: For the prevention of scarlet fever, (1) isolation, (2) improved general health of the contact, (3) toxin as vaccination.

Antitoxin as prophylactic is unsatisfactory and should not be used except in very exceptional and unusual cases.

For the treatment, scarlet fever antitoxin (Dick) has proved very satisfactory in all cases in which I have used it. No complication with these cases. It is used in the moderately severe and severe cases. In the more mild cases that would be called scarlatina it is not used.

DR. O. F. BRADFORD: It is my personal opinion both from my experience and from observation that the use of scarlet fever vaccine either as a preventive or a therapeutic measure is not a worth while procedure. I do not consider it to be of much benefit in either case.

DR. EDWIN HENRY SCHORER: Scarlet fever is not markedly contagious early, the cases that do occur terminate favorably, preventive immunization is of short duration and injection of the immunization agent gives unfavorable reactions at times. For these reasons I have not felt like advocating immunization generally.

In the treatment of the disease prevention of vomiting and dehydration make the cases relatively mild. Giving the curative serum does not have much effect on the avoidance or outcome of complications. Since the universal use of toxin-antitoxin for immunization against diphtheria, injection of scarlet fever antiserum is often accompanied by serum reactions and disease. These complicate convalescence and often make the child sicker than it was or would have been at the height of the scarlet fever had it been treated

in the usual manner. Furthermore, giving the curative serum may prevent the immunization that comes with a normal course of the disease. For these reasons I give the antiserum only when the toxicity is great at the outset.

We still adhere to early isolation (and seldom does a second case occur in the same household) for prevention of the spread of the disease, and treat most of the cases after methods used before the introduction of active and passive immunization by scarlet fever toxin-antitoxin and antiserum.

1316 Professional Bldg.

#### Discussion

DR. URBAN J. BUSIEK, Springfield: My few remarks are addressed particularly to the members who are from rural communities. By that I mean physicians who come from towns of less than 60,000. That includes most of us except the essayists. I think it is generally recognized that there is greater susceptibility to diphtheria in rural communities than in the cities, which makes our problem more acute. In rural communities there is a general lack of knowledge about the importance of application and also of the technic of the Schick test. In a town of 60,000 the people are so unimpressed with the necessity of the Schick test that only about two-thirds will ask to have it done, even when it is offered free of cost after a course of injections with toxoid or toxin-antitoxin. That is true not only of the laity but many doctors do not take enough interest in it to learn the importance and the technic of the Schick test.

Dr. Bleyer mentioned the use of toxoid. When I was in Milwaukee last year I heard Dr. Schwarz give his paper on toxoid and I began to use it. In my Schick tests after toxin-antitoxin I found I had only 65 to 70 per cent immunity in children to whom it was given three months or more previously. So far, in the children to whom I have given toxoid, the first twenty-five who returned for test have been Schick negative. Of course there will be some positives soon, but that to me indicates one tremendous superiority of toxoid over toxin-antitoxin. I know it was not faulty tests because at the same time the toxoid group was tested some of the toxin-antitoxin group were also tested and I got my usual percentage of positive reactions.

As to the treatment of diphtheria in our rural communities, I think that too often we do not attack it vigorously enough. A child will be sent in with what is supposed to be diphtheria and given antitoxin. The doctor may get it from a store where it has been kept a long time, and perhaps he will give it subcutaneously. That is the reason why so many multiple doses have to be given. Old antitoxin is used, the doctor sees the child next day and does not note much improvement so he gives more. If fresh, carefully kept antitoxin is given early intramuscularly or intravenously few second injections will be necessary.

As to immunization against scarlet fever, I believe the impression in our community is just about as Dr. Gilkey brought out. We are using very little of the toxin for permanent immunization, and we do not use much antitoxin for treatment. I feel that unless the child has a pretty severe scarlet fever I would rather let him get well without the antitoxin than to have the terrific reactions we sometimes see.

DR. J. F. CHANDLER, Oregon: About two years ago the physicians of the county immunized 1,700



children and there has not been a report of diphtheria among any of those children. In the last fourteen months I have received report of but two children with diphtheria; they were under two years of age. One case I saw myself as health officer. The child had been sick about 48 hours. The doctor told them it was simple croup, and in a few hours after he saw the child I was called. When I arrived I found the child almost dead, and it died in thirty-five minutes. It had had croup, but there are different kinds of croup. I reported it diphtheria, shut down everything and gave those exposed toxin-antitoxin. A swab from the throat and nose was sent to a laboratory and came back with a negative report.

What struck me was the report of the gentleman from St. Louis that diphtheria may show only at postmortem. I think in these cases we should act at once. If there is any place where delay is dangerous it is in diphtheria.

DR. W. W. JOHNSTON, Farmington: For the encouragement of those who may have some question as to the advisability of an attempt at more or less permanent immunization against scarlet fever, I may say that we have an orphanage in Farmington with an average of 115 children. The normal capacity of the institution is about 75, so you will see that the institution is crowded. For four or five years past there has been an outbreak of scarlet fever in this home almost every year. In order to keep the children in school teachers have to be brought in to help those under quarantine to keep up with their grades. Shortly after school began in the fall of 1929 three cases of scarlet fever developed in the home and we expected a considerable number of other cases. We immunized 100 of the children, being the number in whom we could get no history of scarlet fever. We immunized them by the five-dose method and in spite of the presence of scarlet fever in the home and the limited means of isolation not another case of scarlet fever developed. We have not used the Dick test on the children since the immunizations but expect to do so in September with the idea of discovering new ones who have come in and those who may not have developed immunity.

I can give nothing definite at this time as to the results of the immunization other than to say that there has been no further evidence of scarlet fever in the home. We had no infection in those who were not immunized. They had a definite history of scarlet fever.

DR. JOHN ZAHORSKY, St. Louis: I think Dr. Gilkey presented his subject scientifically. As to the treatment of scarlet fever with antitoxin, we do not use it except in severe cases that are very toxic at the onset. I think it should be used then. It is up to the practitioner's judgment whether to use it or not. You must remember that the scarlet fever in this country of recent years has been very mild; it is getting worse now. Up to now the death rate from scarlet fever has been ridiculously low—two-tenths of 1 per cent death rate only. So there does not seem to be any need of using the scarlet fever serum.

Scarlet fever varies in virulence at different times. It has phases and we are gradually approaching one of these virulent phases, I think. Young babies are not very susceptible to serum reaction. In babies under three years of age with a septic form, I use it; in older children I rarely use it.

When Dr. Dick first brought out his method of immunization we used it extensively for one or two years. We have fifty or sixty cases immunized by that method. It is true we did not have many

cases of scarlet fever in that group. We used three injections. We now use five injections and we think it is an improvement. It is not perfect yet. One thing that tends to give us pause in scarlet fever immunization is that the young baby is not very susceptible to scarlet fever toxins but develops the sensitization gradually. The question then came up, may we not by injecting the young baby with the three doses of toxin, instead of immunizing him really sensitize him to scarlet fever? Two or three experiences in my own practice led me to believe that we did not always immunize but sometimes sensitized the young baby and thereby caused a severe scarlet fever much sooner than would happen ordinarily. The subject of immunization against scarlet fever must be studied further and the general practitioner should wait for further laboratory and clinical studies.

In the last few years we have been using Larsen's ricinoleated vaccine for children who are liable to be exposed. If there is scarlet fever in the family, isolate the other children for a week but it is difficult to keep them away for six weeks. You must keep a child away for six weeks in order to be reasonably sure of its safety. So we send them home after a week and then give them two injections of Larsen's vaccine. Out of forty or fifty we have only had two failures. If we had something for immunizing the other children that would help the practitioners much. My practice at present in a severe case of scarlet fever is to give the serum at onset. When I have a baby under three years I give the serum every day for several days. Do not give it to the older children. For the general immunization let us wait.

I want to say a few words on Dr. Bleyer's paper. We have another immunization, and that is immunization against diphtheria. A few years ago when this was first brought out in New York and horse serum was used in the toxin-antitoxin I could not grow enthusiastic about it. I knew from practical experience what a little horse serum might do to some children in the way of sensitizing them. I could not see my way clear to give the children in my practice toxin-antitoxin. I used it in two or three hundred cases where we could not watch the children. But now it is different. We have first the sheep serum, and goat serum is also used now—we use goat serum to produce tetanus antitoxin. But still better than that, we are using toxoid almost exclusively except in children from seven to ten years of age. But we immunize young babies between one and two years of age by toxoid, three injections two or three weeks apart. This should be used on the children like vaccination; then we could get rid of diphtheria. The test shows it is comparatively harmless and the immunization is effective, so the doctor who does not use toxoid or sheep toxin-antitoxin is not doing his full duty to the community.

I am asked whether if the children who are watched do not appear at the proper time in immunization against diphtheria, what is the limit? With toxoid there is no limit, and if they do not appear for five weeks, give them the other injection. The interval can be comparatively long with toxoid. If you use serum and wait two weeks there may be greater sensitization to the serum; otherwise the effect should be the same.

DR. P. D. GUM, West Plains: Suppose, Dr. Zahorsky, you were called into a home where there were two or three children and you find one has a mild case of scarlet fever. I grant you should not give the case you see scarlet fever antitoxin, but

what will you do with the other children? Would you give a prophylactic dose?

DR. JOHN ZAHORSKY: We do not give prophylactic doses of scarlet fever serum at all. Why? You must remember that the prophylactic dose of any serum provides immunity only for two or three weeks, while the contagiousness of scarlet fever in the home is six weeks at least, so the prophylactic dose has practically no effect whatever. If a child has been very much exposed and you give the serum and then can send it away for six weeks, that is all right.

I want to emphasize the point in my own paper that the practitioners, including the pediatricians, should use diphtheria antitoxin in all suspected cases before a positive diagnosis is made. The curve shown in Dr. Bleyer's paper would be very much reduced if the doctors had used diphtheria antitoxin in all suspicious cases. In 1921, where the curve went up, I lost three cases of diphtheria. The diphtheria was very virulent. We got heart paralysis one after another in spite of the antitoxin. But that virulent type is dying out. Since that experience I am mortally afraid of diphtheria and in any case that looks like diphtheria I give antitoxin at once.

DR. W. W. JOHNSTON, Farmington: Often the general practitioner in a rural community is called into a home where a child has "croup," as the mother says, but there is no clinical evidence in the throat. Is that physician justified in giving diphtheria antitoxin on suspicion when it might be laryngeal diphtheria?

DR. JOHN ZAHORSKY: I think I brought out that point in my paper. In an isolated community in the rural districts you have a greater problem. You have to consider first the baby with the possibility of diphtheria. If there are older children going to school and you have learned—and you should learn—that there is diphtheria in the community, then you had better give it a dose of antitoxin. But if no one is going to school and there has been no communication with larger cities and no diphtheria reported in the county, you could not do any harm by giving the antitoxin, but I do not know that you would always be justified in doing so. Probably you could wait. If there is a possibility of it being diphtheria, use antitoxin; but if it is inconceivable how the child could have gotten the disease, make a culture and wait.

DR. ROBERT E. BREUER, Newburg: How much antitoxin would you give?

DR. ZAHORSKY: I never use less than 10,000 intramuscularly. Give plenty at one dose, and no more.

## THE UNDERFED INFANT \*

M. J. LONSWAY, M.D.

ST. LOUIS

The changes in infant feedings in the past several years have been so great regarding the character and quantity of the food given that the old standards have become obsolete, therefore I am presenting the subject of the underfed infant. We have found that giving babies more food will cause a more rapid rate of growth. We have found also that babies can

take stronger milk mixtures than have usually been given.

For the past several years it has been our custom to give a larger number of babies undiluted milk and we have found that the larger per cent of the babies will tolerate undiluted milk and make better gains and growth than those given diluted milk mixtures. These babies have apparently a greater resistance to disease than the babies fed weaker dilutions. The size that an individual may attain, no doubt, is fixed by heredity, but we are beginning to alter our beliefs as to the upper limits of growth. There has been experimental data to substantiate the theory that children who receive the optimum amount of food are larger than those who have been fed according to the old standards.

Daniels<sup>1</sup> demonstrated that infants given a larger amount of diluted milk than that previously given in similar experiments made greater gains than the babies given smaller amounts of milk. Nelson<sup>2</sup> observed in a closely supervised experiment, "that babies given undiluted milk produced an increased rate of growth, both in weight and length, and that this increase is accompanied by a proportionate increase in the retention of nitrogen and does not represent merely the accumulation of adipose tissue." Marriott<sup>3</sup> has shown repeatedly, on wards at the St. Louis Children's Hospital, that undiluted milk mixtures are well tolerated by both the sick and well infant, and that frequently the sick infant continues to gain in weight.

Of the different types of babies, the newborn, particularly prematures, are very liable to receive an insufficient amount of food for optimum growth. Prematures, very often, are not strong enough to take the food willingly and then it becomes necessary to feed them by gavage. These babies do very well upon undiluted milk mixtures when given in larger quantities than usually stated in the textbooks.

In the new-born there is a tendency to underfeed because of the desire for the baby to nurse in order to stimulate the breast to produce all the milk possible, and frequently the baby receives an insufficient amount of food, sometimes over an extended period of time. This may cause damage that will affect the growth all through early life. It has been our custom to wait a few days and if there is not enough breast milk for the baby to gain and seem satisfied we immediately give complemental feedings.

Many breast fed babies from one to six months of age are found to be suffering from undernourishment. The mother is under the impression that there is plenty of milk for the baby but the weight curve is not satisfactory.

\* Read at the 73rd Annual Meeting of the Missouri State Medical Association, Hannibal, May 12-15, 1930.



Sometimes these babies suffer no permanent ill effect from underfeeding if the small amount of food has been given only a short time, but if this is extended over a period of months it is almost impossible to give the child sufficient food to bring the weight up to what it should normally be. The stunted growth seems to persist during childhood. Many infants are given complemental feedings too small in amount, not enough to satisfy, or too diluted. These babies likewise do not gain sufficiently.

Some babies are underfed, due to the lack of accessory foods. The average baby tolerates cereal very well at about four months, and vegetables between the fifth and sixth month. Cod liver oil or viosterol is begun about the second month. The amount of these accessory foods varies somewhat with the individual child.

Cod liver oil is first given in one-half teaspoonful doses three times a day, especially during the winter months. Viosterol is frequently given in combination with the cod liver oil, three to ten drops twice a day. Cereal is given twice a day, two teaspoonfuls, gradually increased to two tablespoonfuls. Vegetables once a day, two teaspoonfuls and increasing to two tablespoonfuls. Orange juice is given once a day, beginning with small amounts, and increasing to one or two ounces. Only in special cases is more than one quart of milk allowed.

The amount of milk given varies with the individual child. Some babies will take small amounts and be content and make satisfactory gains, while other babies will take much more and still not gain any more than the baby given the smaller amount of food. It has been our experience that very few babies will take more than they can tolerate. Occasionally a baby will regurgitate some food due to an over-distended stomach. More of the formula is usually ordered than the baby will take. When this is done it is found that the baby will take just enough to satisfy his wants. Some babies have a tendency to become fat when given all the food they can take, but almost invariably in this case there is a familial inclination to obesity and it becomes necessary to limit the food intake.

According to the old standards, one and one-half ounces of milk per pound of body weight a day was supposed to be the optimum. This custom has been changed. Now, when undiluted milk mixtures are given, the average baby will take from slightly below two to two and one-half ounces per pound of body weight a day. Carbohydrates have gradually been increased also, from six or seven per cent to ten per cent now being given for routine feeding.

The usual symptoms of underfeeding are,

unsatisfactory gain in weight and growth, restlessness, sleeplessness, irritability, and constipation. If the child is extremely underfed a starvation diarrhea sometimes results.

Formerly, we were satisfied with an average gain of four ounces per week for the first six months; later this was increased to five or six ounces. Now the average rate of increase is six to eight ounces for the first half year and four to six for the second six months. The average baby will frequently double its birth weight by the fourth month and will triple it by the tenth. The baby that weighs about seven or seven and one-half pounds at birth should weigh between twenty-two and twenty-four pounds when a year old. These babies are proportionately greater in length than the average given under the old order.

Colic in the underfed, especially in the early days of life, is often due to a swallowing of air and to hunger contractions. A colicky baby can generally be soothed promptly if it is given enough food to satiate its hunger completely. The amount of food these colicky babies can take is sometimes surprising; it is not uncommon to have them take twice the calculated amount before they go to sleep.

Constipation is so frequently found in the underfed infant that when this symptom arises the amount of food the baby has been given should be immediately investigated as it has been found that in the majority of cases constipation in infancy is caused by underfeeding.

Frequently a baby is seen where the symptoms are misinterpreted; but when the gain in weight is slow, there is no vomiting, but there is constipation, the disorder may be attributed to underfeeding. Sometimes the type of food receives the blame when the trouble is elsewhere than in the alimentary tract. The infections, particularly otitis media and pyelitis, should be ruled out.

#### REPORT OF CASES

Case 1. *Prematurity*.—J. B., boy, aged four weeks, birth weight four pounds, two ounces, was fed a small amount of breast milk for the first two weeks; was then put on breast milk with complemental feedings of diluted lactic acid milk, ten ounces with six ounces of water and one ounce of Karo. It took two ounces every three hours. The baby's weight increased very little in two weeks; was then put on sixteen ounces of whole lactic acid milk with three ounces of fifty per cent Karo. As the baby was unable to take more than one ounce at a time through the nipple he was fed two ounces by gavage every four hours. This was soon increased to two and one-half and three ounces. The baby started to gain rapidly. At two months of age he weighed six pounds, ten ounces, or, he gained two pounds, eight ounces in one month. He was also given orange juice and viosterol (three drops plus one-half teaspoonful cod liver oil) three times a day.

Case 2. *Mixed Feeding*.—D. H., girl, aged three

months, birth weight six pounds, was breast fed alone for six weeks; average gain was four ounces; was somewhat constipated and rather restless at night; cried considerably during the day before feedings; at six weeks was given a mixture of sweet milk (ten ounces plus ten ounces of water). Was given three ounces alternating with breast feeding every three hours. The child gained six ounces a week on this feeding but was still constipated and restless. The feeding was then changed to whole lactic acid milk one pint, and one and one-half ounces Karo. The baby was given as much as she would take every four hours. The average gain increased to eight ounces a week although in the first week she gained twelve ounces. At the end of six months she weighed over sixteen pounds which was more than two and one-half times her birth weight.

Case 3. *Artificial Feeding*.—J. T., boy, birth weight seven and one-half pounds; was breast fed for two weeks while in the hospital. First seen when four months old; weighed eleven and one-half pounds. Put on lactic acid milk diluted one-third with water and six per cent Karo added. The baby cried frequently, was restless and constipated. Taken off this formula because it was thought that it did not agree with the baby. Was then put on a dilute sweet milk mixture with practically the same results. He was then put on whole lactic acid milk again but this time the formula was made stronger, i. e., one quart of milk plus three ounces of Karo, divided into five feedings, one feeding every four hours. Cereal was also started at this time. The mother reported that in one week the baby had gained twelve ounces and according to the mother was a different child. From being constipated he was having three or four normal stools a day and was sleeping at night. He continued to make rapid gains. In two months he had gained five pounds which was equal to what he had gained in the four previous months.

Case 4. *Excessive Weight*.—R. S., girl, birth weight seven pounds. Was breast fed alone for four weeks then, as the milk was beginning to decrease and the baby was hungry, it was put on undiluted whole lactic acid milk with ten per cent added Karo. The baby gained six to eight ounces for the first few weeks; then the baby's food was increased to give her all she would take and the average gain per week went from six or eight ounces to twelve or fourteen ounces. She was weaned from the breast at this time and was artificially fed. The food intake was decreased so that she now received only about three-fourths of what is normally given a child of her age and weight, but she continued to make large gains in weight. At the end of six months the weight was twenty pounds and at the end of a year was twenty-six pounds. During the last part of the first year the baby's food was practically two-thirds of what is usually given a child of her age and weight. Investigation revealed that her father was the same type of baby, which probably accounts for this baby being overweight and oversize.

Case 5. *Colic*.—A. C., boy, birth weight eight pounds. Breast fed in hospital plus a supplemental feeding of powdered milk with added carbohydrates. The baby was very restless and cried frequently in the hospital. Was only quiet when there was a nipple in his mouth. He was soothed by giving him a water bottle several times a day. He made fairly good gains. The stools were loose and green. There was little or no vomiting and it was thought that the feeding did not agree. It was changed to sweet milk and dextrimaltose. This was given in limited

amounts with practically the same result. After he left the hospital the baby kept the household awake most of the nights. The feeding was changed several times. As the baby continued to have diarrhea all the food was given very diluted. Barley water was substituted on several days for the milk dilutions. While the diarrhea improved somewhat the fretfulness and sleeplessness did not. The baby was first seen when it was two months old. There had been an increase of one pound over birth weight. The baby was then put on undiluted whole lactic acid milk with ten per cent added Karo and instructions given to let him have as much food as he wanted. At the first feeding eight ounces was taken. The second feeding was slightly less. The baby slept through the whole night for the first time since birth. The stools decreased from seven or eight to one or two normal stools. There was a rapid increase in weight. At the end of four months the baby weighed fourteen pounds.

Case 6. *Constipation*.—C. S., boy, birth weight eight pounds, two ounces. First seen at three and one-half months with the history that he had not had one normal movement since he left the hospital. The baby was breast fed exclusively for two months and was constipated during that time. His mother gave him castor oil, milk of magnesia, castoria, and soapsuds enemas, so he would have a stool each day. The baby gained about one pound in six weeks. Was then fed Eagle brand according to the directions on the can. The child gained better but was still constipated. Was then given limited amounts of whole lactic acid milk with one ounce of Karo to the pint. The baby remained constipated and artificial stimulation was resorted to each day. The feeding was changed to undiluted whole lactic acid milk with ten per cent Karo. Instructions were given to let the baby take as much at each feeding as it wanted. This improved his constipation somewhat. Cereals were next added to the diet but did not seem to cause much difference as far as the constipation was concerned. Then an ounce of sorghum molasses was substituted for the ounce of Karo. The baby had a movement each day and made rapid gains in weight.

Case 7. *Prolonged Nursing*.—C. G., girl, birth weight seven pounds. Was first seen when eight months old. Was breast fed exclusively. Was apparently healthy, having no symptoms that would lead the mother to suspect that she was underfeeding the child except that she was slightly constipated occasionally. The weight at eight months was fourteen pounds. The baby was rather thin and delicate looking. It was given supplemental feedings at this time but she would take very little and wanted to nurse all the time. Cereals and vegetables were all started but it was almost impossible to get the baby to eat these foods. She was weaned and put on regular feedings. There was an increase in weight but it was very slow. The baby seemed to be incapable of taking enough food as her capacity was apparently limited due to the prolonged nursing. She is now a year old and instead of weighing at least twenty-one pounds she weighs but sixteen and one-half.

As the growth is obviously influenced by the amount of nourishment the baby takes it should receive all the food it can tolerate to attain optimum growth. Stationary weight in an otherwise normal child indicates an insufficient amount of food and should early be corrected. Colic and constipation are usually



promptly relieved when the baby is given sufficient food to satiate his hunger.

Breast fed babies who are receiving insufficient nourishment to make satisfactory gains are given early complemental feeding. Artificially fed babies should receive at regular intervals all the undiluted milk they need to satisfy their appetites.

301 Roosevelt Building.

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#### DISCUSSION

DR. ZAHORSKY: I want to say a few words about the subject of infant feeding, in order to place Dr. Lonsway's paper in the right light. In our younger days we were all taught that there is great danger of over-feeding babies; that if you over-fed them they would get some acute gastro-intestinal disturbance likely to kill the child. Now we have gotten away from that entirely and give them all they can eat. I remember an old practitioner twenty years ago who paid no attention to this. He said he fed his babies on straight cow's milk and they were allowed everything when they were two months old, and they were nice fat babies,—and we made fun of him. But that is what we are now doing.

I have nothing to add to Dr. Lonsway's method but there is one thing in connection with this against which I want to enter a protest, that is about feeding breast-fed babies on the bottle too early. We cannot help seeing this in our hospitals in St. Louis, and the pediatricians—and I include myself—are so liable nowadays to put the baby on the bottle because we imagine it is hungry. The result is that we have fewer mothers today nursing their babies than we ever had before. We do not give the mothers a chance. Maybe the baby is hungry for a few days, but why should not somebody pay attention to the mother and see that she gets food and rest and other things to make mother's milk? Let the babies cry a few days and pay more attention to the mothers. Somebody must get to work and study the mothers. Why do we have nearly all bottle babies now? We are pushing the babies with strong, concentrated food and we are making them grow tremendously. Is that what we want? Is it best for the child to grow so rapidly the first year that it is above the average? Is that ultimately best for the child? Shall we train it early to eat, or shall we wait awhile? We do not know. But one thing I have been trying to emphasize to the mothers. If one mother's child weighs only fifteen pounds while her neighbor's weighs thirty pounds, I cannot tell her that her child is not as well nourished as the other; she will not believe it. But I tell her one thing, gentlemen. If you will notice a few dozen children that are breast-fed and the same number strictly artificially fed, you will find the breast-fed baby is the smarter child as a rule. There are exceptions; it depends on the family. My trick now to get the mother to stick to breast-feeding is to tell her that it makes the brain grow better to keep the child on the breast until it is five months old.

## SIGNIFICANT SYSTEMIC MANIFESTATIONS OF PARANASAL INFECTIONS\*<sup>1</sup>

BERNARD J. McMAHON, M.D.

ST. LOUIS

An attempt to describe in detail every bodily manifestation of paranasal infections would be a subject too extensive for any single paper. The literature is replete with facts and fancies, statistics and theories, on the one hand too staggering or onerous, on the other too bizarre for me to burden your minds or tax your imaginations with them. It is sufficient for the purpose of this brief discussion that I refer only to a few of the more outstanding and easily recognizable systemic manifestations that are met with daily in the routine practice of general medicine, to the end that there may be established a closer alliance between the general practitioner and the otolaryngologist for the ultimate benefit of the patient himself.

There are certain misconceptions prevalent in some localities of the importance of the role of the otolaryngologist, not the least of which is the impression that he is an individual who does nothing but remove tonsils and adenoids, and that there his usefulness ends; or that every sinus infection must be operated upon in order to be relieved, the practical reaction being that the patient is deprived of the benefit of a thorough and painstaking examination of his ears, nose and throat at the most crucial time. Any attempt to analyze the reason for this state of mind on the part of some persons would lead me into an extensive survey of conditions in various parts of the country relative to the accessibility to competent and well-trained otolaryngologists, either working in communities alone or in the larger medical centers, and that is beyond the scope of this paper. My purpose in pointing out the more obvious manifestations of paranasal infections is to enable one who is not equipped to make a positive diagnosis of these infections to make at least a strong presumptive diagnosis until the actual presence of infection may be ascertained or ruled out by one competent to do so.

Paranasal infections are those not only of the accessory nasal sinuses but also of the middle ear cavity, the mastoid antrum and the mastoid cells. When we think of the eustachian tube as being nothing more than an elongated ostium connecting the middle ear cavity with the nasopharynx, it is not difficult to visualize it in the same light as we do those ostia more intimately connected with the nasal cavity.

\* Read at the 73rd Annual Meeting of the Missouri State Medical Association, Hannibal, May 12-15, 1930.

1. From the Department of Otolaryngology, Washington University School of Medicine.

The mastoid antrum is likewise an accessory sinus of the middle ear, its ostium being the more specifically named aditus ad antrum. Beyond the antrum and connected with it lie the cells of the mastoid, these opening one into the other even to the most distant. We must keep this system of connecting cells in mind as related to the nasopharynx rather than as separate entities to be approached from the outside if we are to have a complete understanding of all the loci which take part in paranasal infections.

An infected sinus is not always a discharging sinus, nor is an infected mastoid always one showing external signs. Fortunately, the majority of sinus infections are self-evident though there are a great many which discharge intermittently, especially the antrums which are more insidious. Particularly is this true in infants and young children. In such cases it is necessary to bring to bear every means available, including the X-ray, in order to make a diagnosis. The X-ray is practically always available and should be used frequently to enable the roentgenologist in your vicinity to perfect his technic and his skill in making sinus plates and interpreting them, thus increasing his value to you and to your patients. This is of great importance in the occult infections of both the paranasal sinuses and the mastoids.

With infection present in the paranasal sinuses causing more or less local discomfort, by what manner does it give rise to systemic disturbances? That some infections are spread by the lymph channels and others by the blood stream has been proved by extensive experimental work. Mullen<sup>1</sup> has very conclusively shown that the peribronchial lymph glands are infected from maxillary sinuses. It is no doubt true that at some time or other during the course of many severe acute paranasal infections a bacteremia is present and foci are planted in one or more of the peripheral organs. Again, the infection may remain entirely localized and severe damage be done to distant organs by the toxins alone, these being either the true exotoxins of bacterial growth or the split products of bacterial and cell destruction. Inasmuch as secondary manifestations are caused by actual pathological changes in the organs affected, the longer these pathological conditions remain the more difficult will it be to relieve the symptoms arising from them. The earlier in life the focus of infection is recognized the less deeply rooted the seeding will become. Our chief interest therefore should be centered on the infant and young child, for in them it is much easier to determine causative factors before the numerous complica-

tions of advancing years arise to cloud the picture.

It is difficult to state exactly the proportion of individuals with paranasal infections who develop hemorrhagic nephritis, arthritis, valvular heart disease, gastro-intestinal disturbances and lower respiratory infections. Not all do, fortunately, but there is a sufficient number to warrant our serious consideration and the bending of our every effort to eradicate these primary infectious foci.

*Hematuria.*—Occurring with other significant urinary findings hematuria is indicative of an acute hemorrhagic or glomerular nephritis, the most common type of nephritis seen in children, according to Marriott.<sup>2</sup> That infection of the upper respiratory tract, principally the paranasal sinuses and mastoids, is an important and at times the sole factor in the causation of this type of nephritis has been repeatedly stressed by Dean,<sup>3</sup> Marriott,<sup>2</sup> Hartmann,<sup>4</sup> Jeans<sup>5</sup> and others. Longcope<sup>6</sup> states that such infections are present in 85 per cent of the cases, including tonsillar infections, and

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RELATIONSHIP BETWEEN RESPIRATORY INFECTION  
AND GLOMERULAR NEPHRITIS  
(Longcope et al.)

40 cases

1. 85% (32 cases) preceded by acute respiratory infection, 68.7% of which on culture showed the Beta type (hemolytic) of streptococcus, and 12.2% the Alpha type.
2. Ten of the 32 recovered completely. In nine of these the infecting organism disappeared.
3. Twelve cases not recovering were followed as they progressed. In ten (83.3%) the infecting organism persisted.
4. There was no evidence of bacterial invasion of the kidney.
5. All strains of streptococci produced "toxic filtrates."

Figure 1.

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that 81.2 per cent are due to the hemolytic streptococcus. These observers likewise feel that a large number of these cases are entirely cured or greatly relieved by a complete removal of these foci of infection if it is done before the condition has persisted for too long a time, namely, four to five months. We have seen some very gratifying and at times startling recoveries at the St. Louis Children's Hospital. There are certain marked changes in the blood chemistry which Hartmann<sup>4</sup> considers the result of the severe vomiting or diarrhea, edema or dehydration, or convulsions, these symptoms being caused by the upper respiratory infection.

The chronic nephritides are not so greatly helped by the removal of focal infections, except in so far as the procedure obviates to a great extent the possibility of reinfection of the already badly damaged kidney substance. That this does occur is evidenced by the recurrence of kidney symptoms in both glomerular and chronic nephritis following acute exacerbations of the paranasal infections or surgery upon the



sinuses or tonsils, at which time the areas of absorption are reopened and a flood of bacteria or toxins is released to permeate the entire system. While all cases are not cured, a sufficient number are helped to justify active treatment. Antrums are occasionally encountered which are entirely sealed and from which are obtained large amounts of sterile pus. Such conditions must cause kidney irritation by throwing into the blood stream the toxins of anaerobes and protein split products of extreme toxicity.

*Persistent Cough in Children.*—In a patient with purulent sinusitis, especially with a profuse postnasal discharge, there always is a certain amount of aspiration of this material into the tracheobronchial tree, whether it occurs actively by forcible "snuffing back" or passively by the gravitation of secretions while the patient is sleeping. While the lower respiratory mucosa may be able to cope with the intruding pus for a certain length of time, it eventually does become infected and a chronic tracheobronchitis is established, which resists all efforts at control unless the sinus infection is cleared up. The postnasal "dropping" also gives rise to a chronic lateral pharyngitis and lingual tonsillitis, which are among the most sensitive areas for creating a reflex cough. The paths of lymphatic drainage from the maxillary sinuses to the bronchial and mediastinal glands have been clearly illustrated by Mullen<sup>1</sup> who injected India ink into the sinuses and traced the carbon deposits by way of the submaxillary and internal jugular nodes, the lymphatic ducts, the great veins, the right side of the heart, and the lungs. Infectious material followed the same route. I agree with Mullen that in the chronic hyperplastic types of sinusitis, in which there is thickening of the mucosa and infiltration with different types of cells and bacteria and very little discharge, there occurs a greater amount of absorption by way of the lymphatics and a more pronounced peribronchial glandular enlargement. These enlarged glands may activate a reflex cough by pressure on nerve trunks or plexuses, or on the bronchial walls themselves. This type of cough may be more persistent than the bronchial type because the glandular enlargement is much slower to respond after the sinus infection has been controlled.

The bronchial and peribronchial coughs may both be present at the same time, as one of our cases demonstrates very well. This patient, a girl 18 years of age, had had a persistent cough, most pronounced at night and accompanied by a large amount of purulent expectoration for as long as she could remember. She also gave a history of having had a heavy yellow discharge from the nose for several years. Ex-

amination revealed a chronic purulent left maxillary sinusitis and almost complete opacity of this sinus by X-ray. The X-ray of the chest



Fig. 2. Anteroposterior X-ray view of paranasal sinuses. Arrow points to opaque left maxillary sinus.

showed a pronounced enlargement of the peribronchial glands and increased density of the markings along the bronchial tree. An opening was made in the left nasal antral wall of the inferior meatus in order to obtain freer drainage and aeration of the left antrum. The sinus was treated through this opening. The discharge gradually subsided, the cough practically disappeared, and the expectoration markedly diminished in amount.

The persistence of some coughs is readily explained by the still enlarged peribronchial glands. There is no doubt about the dependence of this lower respiratory infection upon the sinusitis.

*Diarrhea and Vomiting.*—With the resultant dehydration, loss of weight and rise in temperature this symptom complex has a particular significance in infants, pointing to an infection not only of the sinuses but especially of the middle ear and mastoid. The recent work of Dean,<sup>7</sup> Lyman and Alden,<sup>8</sup> Marriott,<sup>2</sup> Jeans,<sup>5</sup> and others, has brought out the fact that in a large number of these cases the diarrhea-vomiting complex is controlled by establishing postauricular drainage of one or both mastoid antrums. This does not mean that every patient showing these symptoms must have the mastoids opened; it simply emphasizes the fact that the ears of every such patient should be examined by one competent to judge and to act, even though the picture is not one of frank involvement of the middle ears or mastoids, as a frank infection is not always present. Some



Fig. 3. Anteroposterior X-ray view of chest. Showing thickening of hilus shadows, calcification of hilus glands and marked peribronchial thickening at bases.

of our most startling recoveries have occurred in patients with the least macroscopic middle ear pathology, though the microscopic pathology in the mastoid specimens was unquestionable. In our last series of thirty-nine cases of mastoiditis in infants<sup>9</sup> this symptom complex was present in twenty-two, or 56.4 per cent, a sufficient number to make one feel in duty bound to have the ears carefully examined in every case.

It is a moot question whether the swallowed secretions from the infected sinuses and middle ears cause the gastro-intestinal irritability or whether it is a purely toxic irritability of the sympathetic and parasympathetic nervous systems. I feel that it is a combination of both in some cases, and may be due to either in other cases. I have seen patients with repeated attacks of acute appendicitis accompanying sinus infections and others with definite cholecystitis which subsided when the marked purulent sphenoidal sinusitis was treated and cured. Marriott<sup>2</sup> calls attention to the fact that some children develop symptoms which may be difficult to distinguish from those of appendicitis, coincident with repeated nose and throat infections, these symptoms subsiding as the upper respiration infection subsides. Brennemann<sup>10</sup> particularly mentions this syndrome.

*Carditis; Arthritis.*—There is so much that has been written about focal infection in rheumatic endocarditis, and arthritis of both the acute and the deforming types, that it would be impossible even to attempt quoting statistics

and opinions. Nevertheless, it is surprising to find how infrequently the paranasal sinuses are mentioned in literature, except casually or as a minor factor. Too often the absence of frank discharge is taken to mean the absence of any sinus infection. Dean<sup>11</sup> points out very definitely the close connection between chronic arthritis and paranasal sinus disease in children and cites several cases which very strikingly illustrate the good results to be obtained by selected operations on the sinuses after persistent and careful local treatment has failed to accomplish the desired results.

The tonsils and adenoids may be the offending factors in a great many cases, but when their removal fails to check the course of the disease the sinuses should be thoroughly and painstakingly examined, not once but many times, before they are ruled out entirely. Byfield<sup>12</sup> states that chronic deforming arthritis in children is relieved and the progress of the disease arrested by intensive treatment of the sinuses when removal of tonsils and adenoids has failed.

The peculiar selectivity of some bacteria, principally certain strains of the hemolytic streptococcus, for the endocardium and the synovial membranes creates such an optimum condition for their rapid growth that by the time the clinical condition is recognized the pathological changes have become well established and a great deal of damage has already been done. It is but reasonable therefore that we should direct our attention to the portals of entry of these bacteria, eradicate them to the best of our ability, and patiently await the healing out of the profound secondary pathology. The lack of understanding of this pathology by many observers is responsible for the disparity in the reports of results obtained, I am sure. The patient should be under the observation of the otolaryngologist for many months, even after the sinuses have been opened and drained, so that any reinfection may be promptly recognized and treated.

#### SUMMARY

1. Many systemic manifestations, such as acute glomerular nephritis, chronic nephritis, chronic bronchitis, chronic peribronchial adenopathy, diarrhea and vomiting in infants, endocarditis and arthritis, are frequently the result of paranasal sinus and mastoid infections.

2. The greatest relief from these affections has been obtained by the early diagnosis and persistent treatment of the upper respiratory infection.

3. The closest cooperation between the general practitioner and the well-trained otolaryn-



gologist is the desideratum which must be attained in order to secure the best results for the patient.

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#### UNDERWEIGHT CHILD IS NOT NECESSARILY SICK

An undernourished child is not a sick child if he is normal in every other way, according to a study made by the Elizabeth McCormick Foundation of Chicago and reported in the September *Hygeia* by Dr. Oscar T. Schultz.

Eighty-three children from 5 to 13 years old, in whom the workers of the Foundation had not been able to bring about a satisfactory gain in weight, were carefully studied in a hospital over long periods. Underweight being their only difficulty, they were not treated as sick children, but were on a normal schedule of play and exercise.

It was found that the basal metabolism of these children was within normal limits and that their bodies retained calcium better than children of normal weight. The investigators concluded that the underweight child, who has lost his stored fat and sugar, carries on his physical activities at the expense of his tissues and compensates for the loss by a greater ability to use the material that rebuilds tissues.

The study indicated that when physical defects are excluded the underweight condition is probably largely or wholly a matter of diet, which must be studied for the individual child. The diet should be relatively high in protein foods, should provide plenty of calcium through milk and should of course contain the necessary vitamins, Dr. Schultz concluded. If investigation shows that the diet is satisfactory, then the difficulty may be in the child's food habits.

An attempt should be made to bring every underweight child up to normal weight because the state of undernutrition may make the child susceptible to infection and may make him unequal to the demands made on him by school work and play and growth. But it is well to know that underweight is not a disease.

#### WASHINGTON UNIVERSITY CLINICS

#### STREPTOCOCCUS VIRIDANS ENDOCARDITIS OCCURRING UPON A MALFORMED (BICUSPID) AORTIC VALVE

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#### REPORT OF CASE

The patient, a colored man aged 30 years, entered the hospital November 10, 1929, complaining of a severe headache of two-weeks' duration, a loss of 15 pounds in weight during the previous three months, and a pain in the right flank. This pain had been severe for two weeks but was said to have been present all fall.

Until three months before, he had always been well and strong. There was no history of acute rheumatic fever, of frequent sore throats, nor of any symptoms referable to his heart. Had measles, mumps and whooping cough during childhood; typhoid fever at 11 years, and malaria 12 years ago.

During the past three months he had tired easily and had frequent night sweats. Had occasional chills during these three months. Seven weeks before, because of pain in his back, had stopped work. During the last two weeks pain had been severe. For weeks had throbbing headaches which lasted all day and a fever as high as 103. No distinct chills in these past two weeks but complained of cold sensations.

On admission, there were few physical findings of significance. A local tenderness in the right flank and a palpable mass believed to be the right kidney were noted. There was a leukocytosis and fever. Tonsils small and not inflamed. Teeth in fair condition and, later, when more carefully examined, showed no reason for considering them as foci of infection. Lungs clear, heart not enlarged. Heart sounds reported as regular and normal in character. Blood pressure 108/70. No edema and reflexes were normal.

**Laboratory Findings.**—Blood examination: R.B.C. 4,670,000; Hb. 87 per cent; W.B.C. 16,800 with a differential count showing P.M.N. 74 per cent; lymphocytes 22 per cent, large mononuclears 4 per cent. The white count during the patient's stay in the hospital varied from 10,150 to 18,600. No malarial organisms found. Wassermann reaction and Kahn test negative. A prostatic smear showed no intracellular diplococci but many pus cells. Urine negative. The roentgen ray plates of the chest and of the lumbar and thoracic spine were negative.

In spite of the normal urine, a renal abscess was suspected because of the plateau type of fever and the leukocytosis together with the localized tenderness and spasm. A cystoscopic examination was done and the examination of the urine recorded as follows: Bladder urine, many W.B.C. in clumps, few epithelial cells, bacilli with a methylene blue stain; right ureteral urine, blood cells in proportion, no bacteria; left ureteral urine, blood cells in proportion, few epithelial cells, no bacteria.

On November 19, 1929, patient complained of acute pain and tenderness in the left buttocks over an area about 2 cm. in diameter. On November 20,

1929, a note was made by Dr. Bulger that a to-and-fro blowing murmur was audible over the aortic area and he suggested a diagnosis of acute bacterial endocarditis and requested that a blood culture be made. The culture showed a nonhemolytic streptococcus.

Two days later, multiple petechial hemorrhages were seen in the conjunctivae and in the skin of the chest and back. The heart still not enlarged. A blood culture again showed a growth of nonhemolytic streptococci. Hemoglobin at this time was still 90 per cent, and R. B. C. count 4,440,000. W. B. C. count 14,900.

On December 2, 1929, the heart murmur was described as a musical diastolic murmur over the precordia, most intense at the third left costochondral junction; and again as a loud musical murmur best heard at the aortic area but transmitted over the entire precordia. It was thought to start in systole and to extend through diastole without change or interruption by the second heart sound.

On December 3, the patient complained of a tender, aching left ankle. There were no objective signs of this.

On December 12, a definite streptococcus viridans was cultured from the blood and again on December 20.

January 2, 1930, complained of pain over the heart; a friction rub was heard over the pericardium. In the right lung crackling rales and decreased resonance were made out.

January 5, the patient seemed much worse and was delirious. The R. B. C. were now 3,680,000, W. B. C., 19,950.

January 7, marked dyspnea and cyanosis. Pulse rapid but strong and regular. Blood pressure 130/60. Patient restless and irrational. This condition continued until death January 8.

The urine showed no casts at any time. Occasional red and white blood cells were noted. The urine gave a positive guaiac reaction from November 16 to December 3. This was first recorded on the day following the cystoscopic examination.

The final clinical diagnosis was streptococcus viridans endocarditis. All comments as to the localization of the lesion pointed to the aortic valve. The onset of the disease with what was suspected as a renal abscess before any cardiac involvement was recognized, led to a discussion of the character of the lesion in the right flank. The absence of a history of a previous heart lesion or of an attack of acute rheumatism was also a fact of interest.

#### AUTOPSY FINDINGS

The body showed marked emaciation. The conjunctivae showed several petechial hemorrhages on the palpebral surfaces. No petechiae in the skin over the cheeks, neck, chest and arms.

The peritoneal cavity contained no excess of fluid. There were minute hemorrhages in the parietal and visceral peritoneum.

The left pleural cavity contained about 100 c.c. of clear, yellowish fluid. The visceral pleura was roughened by fresh fibrinous exudate. On right side were many old fibrous adhesions, loose in texture and considerable fluid had accumulated in their meshes.

The pericardial sac was loosely adherent to the surface of the heart but was easily pulled away. There was also a little pericardial fluid which separated the heart from the sac posteriorly.

The heart was distinctly enlarged, weighing 400 grams. Its epicardial surface was completely cov-

ered by a thin layer of fibrin. This covered the surface of the auricles as well as of the ventricles. In some places, the epicardium was hemorrhagic beneath this thin layer of fibrin. When sectioned, the auricle and ventricle on the right side of the heart were of about normal thickness but the cavity of the ventricle was a little dilated. The endocardium of this side of the heart was quite smooth and the valves soft and delicate. On the left side of the heart the endocardium of the auricle was normal. The auricle was slightly dilated. The mitral valve was perfectly normal, its edge thin and veil-like. The left ventricle was distinctly dilated and its wall appeared thickened when the dilatation was taken into consideration.

The aortic valve was the most interesting part of the heart. It seemed that there had been originally only two large aortic cusps. These were of equal size. There was no remnant of a third attachment. Both coronary orifices were behind the most anterior cusp. Both cusps were partially destroyed by a subacute bacterial infection. Covering the remains of the valve was a layer of irregular pinkish-yellow vegetation 0.5 to 0.75 cm. in thickness. Some of these were friable, others quite firm. The posterior cusp was not only destroyed along its edge but had a perforation in the center. The vegetations had



Fig. 1. Heart opened to show the two cusps of the aortic valve and the vegetative endocarditis. The arrow passes through the perforation in the posterior cusp.

extended down a little on the ventricular wall beneath the posterior cusp and had also extended to the aorta just above the attachment of the cusp. There was one peculiar spike-like vegetation protruding from the ventricular wall. The coronary vessels were normal. The heart measurements were: Left ventricular wall, 14 mm.; right ventricular wall, 3 mm.; aortic ring, 6 cm.

The aorta was normal except for the small vegetations mentioned above. The other large vessels showed no gross abnormalities.

Both lungs were soft and air-containing throughout. On the posterior surface of the left lung there were a few purplish areas of atelectasis. The cut surfaces of the lungs had a brownish-red color, but



were uniformly soft and elastic, and showed no pneumonic consolidation.

The liver was quite firm, of a deep reddish-purple with mottlings of yellow. When sectioned the cut surface showed the typical nutmeg appearance of chronic passive congestion.

The gallbladder was normal.

The spleen was firm and of a deep bluish-purple color. A number of faint grayish-yellow areas were visible on its surface. These were not depressed. Sections through these revealed small infarcts, rather fresh in character.

The pancreas and adrenals were normal.

The gastric and intestinal mucosa was flecked with tiny hemorrhages.

**Kidneys.**—The capsule of the right kidney stripped easily over the posterior surface but with difficulty over a circumscribed area on the anterior surface. Here there was a depressed area about 2 cm. in diameter. This had all the characteristics of a moderately old infarct. The depressed surface had a yellow color and the rounded margins were hyperemic. The rest of the kidney surface had a pale yellowish-pink color, flecked by quite numerous tiny petechial hemorrhages. In addition, there were two or three small depressed red scars which were probably also the remains of small infarcts. When sectioned, the cut surface of the cortex was of normal thickness and had a pale-pink color. The striae were a little blurred but wherever they were made out they were quite straight. The glomeruli were distinctly seen. The pyramids were normal. The pelvic lining showed a few petechial hemorrhages.

With the exception of the large infarct, the left kidney was approximately the same as the right. The ureters were normal. The bladder mucosa showed a few small hemorrhages. The prostate and testes were normal.

The bone marrow from the middle of the femur was composed almost entirely of fat with only a few small flecks of red blood-forming tissue.

The brain showed large hemorrhagic areas in the meninges over both cerebral hemispheres. These were most extensive over the right frontal region. Deeper in the brain substance were a few widely scattered small hemorrhages. The larger vessels contained no emboli.

Many colonies of *Streptococcus viridans* were cultivated from the heart's blood and the organism was seen in smears from the vegetations on the aortic valve.

#### MICROSCOPIC NOTES

**Heart.**—There was a fresh fibrinous exudate over the epicardial surface. There were several small foci of polymorphonuclear leukocytes. There was also a small, irregular, vascular scar which seemed to be an old infarct in which only the connective tissue framework was left. There was nothing which even remotely resembled an Aschoff body. Sections of the vegetations were not made.

**Lungs.**—There was some edema, a chronic passive congestion of slight degree, and a few polymorphonuclear leukocytes in some of the alveoli.

**Spleen.**—A great deal of blood in the pulp spaces. Many polymorphonuclear leukocytes were found immediately about the Malpighian bodies and everywhere throughout the pulp. There were also numerous large mononuclear cells. Some clumps of cells, which suggested islands of blood formation, and a few megalokaryocytes were seen. The pancreas and adrenal were normal.

**Liver.**—The liver cells about the central veins were necrotic. Sometimes the necrotic cells remained in position; in other places only the framework was left; and there were hemorrhages.

**Kidney.**—A few groups of tubules contained red blood cells and leukocytes. Only a few glomeruli were seen which showed leukocytes in their capsular space. No glomerular thrombi. One small, very fresh area of infarction and several partly fibrous glomeruli were seen. A section was not made through the large infarct.

**Femur Bone Marrow.**—There were only a few small islands of blood formation. Most of the bone marrow was made up of gelatinous lilac-stained material by which the fat cells were separated.

**Prostate.**—There was a slight accumulation of lymphocytes and a few polymorphonuclear leukocytes in a few tubules. There was only a very small number of wandering cells in the loose connective tissue beneath the urethral epithelium.

**Brain and Meninges.**—There was considerable blood in the meninges. In addition to the red cells there were a few leukocytes, chiefly in small foci. The brain substance showed a few points of necrosis surrounded by polymorphonuclear leukocytes accompanied by small hemorrhages.

#### ANATOMICAL DIAGNOSIS

Congenital bicuspid aortic valve; *Streptococcus viridans* endocarditis of aortic valve with implantations on ventricular wall; infarcts of kidney and spleen; *Streptococcus viridans* nephritis; petechial hemorrhages in skin, conjunctivae, brain and serous surfaces; meningeal hemorrhages; fibrinous pericarditis and pleurisy; slight cardiac hypertrophy and dilatation; chronic passive congestion of liver, spleen and lungs; old pleural adhesions.

This is an instance of a typical although confusing onset of the disease, with symptoms referable to the embolic phenomena rather than to the cardiac involvement itself. The age and position of the renal infarct and the involvement of the renal capsule make it certain that this was the cause of the pain in this region. The characteristic appearance of the infarct leaves no doubt that it was the result of a vascular occlusion and that the vegetations on the heart valve must have been present before the occlusion occurred although the cardiac lesion was not recognized at that time.

The absence of a history of rheumatic fever was commented upon because one has become accustomed to the frequent association of *Streptococcus viridans* endocarditis with old rheumatic endocarditis. The cause of this association has been much discussed. To some this has seemed to be evidence that the two diseases have the same etiologic factor; but, because of the striking difference in the two pathological pictures, others have felt that this cannot be the case. The only other explanation seems to be that the abnormal valve in some way predisposes to the localization or growth of the *Streptococcus viridans*. Cases such as this are therefore of more than mere anatomical interest, for they throw some light

upon this problem. If the occurrence of *Streptococcus viridans* endocarditis upon congenitally malformed valves as well as upon chronic rheumatic valves is much too frequent for any mere coincidence, then one must think that it is the abnormality irrespective of its etiology which is the predisposing factor; and rheumatism so often only because it is the most frequent cause of injury to the endocardium. Why these abnormal valves are more susceptible to the *Streptococcus viridans* is still unexplained.

Congenitally abnormal aortic and pulmonary valves are most frequently involved. Thus, in cases of *Streptococcus viridans* endocarditis involving either of these valves, in the absence of a history of rheumatic fever, one should suspect a congenital malformation. Attention has been called to such cases, particularly by Lewis and Grant and by Abbott, while Thayer in his studies on bacterial endocarditis gives the interesting reference to Sir James Paget who as long ago as 1844 recognized the frequency with which malformed pulmonary or aortic valves were the seat of subsequent disease.

Euclid and Scott Aves.

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### THE DIAGNOSIS OF MYOCARDIAL DISEASE

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Presented at the Friday Morning Clinical Conference at Barnes Hospital.

Little precise evidence is available regarding the accuracy with which myocardial disease may be objectively diagnosed or excluded. Physical findings are often ambiguous, and in such cases the laboratory procedures of roentgenography and electrocardiography may assist in the diagnosis. It is not known how often serious disease of the heart muscle may exist without obvious pathological symptoms or signs. Two cases interesting in this connection came recently to my knowledge.

#### REPORT OF CASES

Case 1. A telephone lineman, aged 57, came to the Washington University Clinic complaining of a pain, located at the right of the sternum, which had appeared for the first time five months previously following severe exertion. It disappeared after ten to fifteen minutes but recurred when exercise was attempted. Later, it came on more frequently after less exercise and he had to stop work. For three months the pain had radiated to both arms, particularly to the left arm where it spread to the mid-

dle fingers. At that time he also began to suffer from pain in his left thigh, extending to the ankle. This pain was more or less constantly present, was not provoked or aggravated by exercise and seemed unrelated to and independent of the pain in the chest. It had none of the characteristics of intermittent claudication. At the time of admission he was unable to walk a block without pain.

His father died from cardiovascular disease. His own past history did not appear relevant to the difficulties of which he complained.

The patient appeared healthy, perhaps somewhat plethoric. The area of cardiac dullness was not enlarged, the heart sounds were distant (the chest wall was thick), the action was regular and no murmurs were heard. The peripheral vessels were but moderately sclerosed and arterial pulsations could be felt in both feet. The retinal vessels were somewhat tortuous and sclerotic. The blood pressure varied within normal limits, about 120/80. Exercise caused the pressure to increase to 156/88 but in six minutes it was again normal. The neurological and other physical examination was negative.

A six-foot plate showed the size of the heart within normal limits. The Wassermann reaction was negative. The electrocardiogram showed low T waves in lead I and slurring of the descending limb of the QRS complexes.

At first he was seen in the dispensary. The history was considered so characteristic of degenerative heart disease that he was treated as such, even in the absence of characteristic physical findings. But neither nitroglycerin in full doses nor metaphyllin affected him in any way. The diagnosis was then in doubt. It was emphasized that cardiac pain does not usually radiate to the left leg. While the impression of cardiac disease was not abandoned he was admitted to the hospital for more thorough investigation.

On further roentgen ray examination he was found to have a paravertebral mass of indeterminate nature extending from the eighth to the eleventh dorsal vertebrae. This finding was a probable explanation of the pain in his leg and possibly caused the pain in the chest.

Slightly favoring a diagnosis of heart disease in this case, were the electrocardiographic findings, but these though suggestive were not conclusive of myocardial disease. The problem which caused much discussion was then: Is it possible to exclude cardiac disease in the absence of objective findings? A partial answer was to be given the next day.

Case 2. That evening a gentleman, aged 54 years, was having dinner at his hotel. For eight or nine months he had been having occasional attacks of substernal pain which were brought on by exercise or emotion but relieved by quiet. He consulted Dr. Albert E. Taussig who on repeated physical examinations found the cardiovascular system normal. The blood pressure varied between 110/80 and 135/95 and the electrocardiogram was normal. The pain was relieved when the patient smoked less and also after small doses of nitroglycerin. For the last five days, however, the pain had been present over the lower sternum independently of food or exercise. After the dinner he was not feeling well and retired to his room where he was found dead a few hours later.

Autopsy showed the pericardium greatly distended



with a solid blood clot, in which the heart was embedded. The heart was of normal size. Along the left margin of the ventricle there was a ragged vertical tear of the epicardium and underlying myocardium about 15 mm. in length. The tear extended into the left ventricle. The adjacent muscle had the gross appearance of an infarct. The coronary arteries showed irregular patches of atheromatous thickening but without evidences of occlusion of the main stems. The aorta showed a moderate grade of arteriosclerotic thickening, especially around the ring.

Here, then, was a patient with advanced coronary disease who up to the very time of his death showed no objective evidence of heart disease. In his case, our methods were insufficient to show grave myocardial involvement. One must ask how frequently such cases are encountered.

Some statistical studies were undertaken to answer this question. The reports of a hundred routine autopsies of patients over fifty years of age were examined. Fifty-two had no cardiac findings sufficient to cause mention in the autopsy reports. Twenty-nine were recognized clinically as cases of cardiovascular disease, twenty-five having died therefrom. This series corresponds closely to Fahr's estimate that of persons over fifty years, twenty-three per cent are likely to die from cardiovascular disease. Seventeen of our cases were shown to have moderate or severe lesions in the heart at the time of autopsy but in all these cases the treatment of a fatal disease had commanded the interest of the physicians to the exclusion of a thorough cardiac investigation. Six of these had advanced lesions in the coronary arteries, the myocardium, or both. In the entire group only two patients had advanced heart disease which the investigation of the cardiovascular system failed to show.

One of these patients had, on physical examination, a normal cardiovascular system with a blood pressure of 120/80. He died from cancer of the pancreas. The postmortem examination showed atheromatous thickening of the mitral and aortic valves and atheromatous plaques of the intima of the aorta caused narrowing of the coronaries. The other patient also had, on physical examination, a normal cardiovascular system with a blood pressure of 130/70. She died from an operation for cerebral tumor. The postmortem examination showed atheromatous plaques extending around the coronary orifices and narrowing their lumen. Microscopically, the muscle bundles of the heart were widely separated by wavy strands of connective tissue. In some places there was slight infiltration of fat into these areas. Neither case was examined by means of roentgen ray or electrocardiogram.

From this analysis it appears that autopsy material, although the most direct way of demonstrating cardiac lesions, is not very useful as a method of showing how frequently a

thorough physical examination is negative in the presence of severe heart disease.

Another analysis was then undertaken to show this point. Some symptoms which will be enumerated are thought to be strongly suggestive of heart disease. If they are marked, heart disease is often diagnosed especially in people over fifty even in the absence of physical findings. By investigating a group of persons presenting these symptoms, a rough estimate might be obtained of the frequency of heart disease without physical findings.

All requests made to the heart station for electrocardiograms are supposed to contain a clinical note. About 20,000 such requests have been made during the last ten years. Those were selected which had been made for patients who were over fifty years of age and in whom degenerative heart disease was suspected because of the following entries on the request cards: Arteriosclerotic heart disease, coronary disease, angina pectoris, precordial pain, coronary thrombosis or occlusion, feeling of constriction around the heart, nocturnal dyspnea. Requests made because of myocarditis, asthma, myocardial weakness, heart disease, "study," etc., were thought to be made on too indefinite grounds to warrant further investigation. Since hypertension, congestive heart failure, arrhythmias, such as auricular fibrillation, flutter or paroxysmal tachycardia, are conclusive of heart disease, patients showing these findings were excluded from the analysis. Two hundred and ninety-four electrocardiograms fulfilled the criteria for further investigation. One hundred and ninety-one of these showed inverted T waves in leads 1 or 2 or both, marked left axis deviation, conduction defects or combination of these abnormalities which in themselves constitute the diagnosis of heart disease.

Of the one hundred and three remaining electrocardiograms which had no gross abnormalities, eighty-three showed the stated distribution of the following features:

- Transverse heart or slight left axis deviation, 44.
- Extrasystoles, 12.
- Slurring of the complexes, 43.
- Minor changes in T waves, 16.
- Nodal rhythm, 1.
- Delayed A-V conduction, 2.
- Right axis deviation, 5

None of these findings definitely indicate heart disease. Especially is "transverse heart" considered a normal occurrence. They have, however, occurred so frequently in patients suspected of heart disease that when several are found together or in combination with suggestive symptoms they constitute a fairly definite physical finding.

In thirteen cases of this group the electrocardiographic changes were minimal. By in-

vestigating their clinical records it was found that six patients gave no evidence of heart disease, in three the cardiac diagnosis was uncertain, two had physical findings of advanced cardiovascular disease. Only two had a clinical history strongly suggestive of such a condition with a negative physical examination and an indefinite electrocardiogram.

Twenty patients had normal electrocardiograms. Their clinical records were examined. Six had objective heart disease and thirteen were too incompletely investigated to allow of any conclusion. Only two cases gave a definite history of cardiac impairment of which there was no clinical evidence in spite of thorough examination.

One was a white man, aged 59. For one year he had had precordial pain on walking a block, especially after meals. The pain was relieved by rest and amyl nitrite. There was some dyspnea on exertion but no palpitation. The heart was of normal size (confirmed by roentgen ray), rate and rhythm. The blood pressure was 138/84 and the Wassermann reaction was negative. He was observed in the clinic for about eighteen months during which time the attacks persisted without much change.

The other patient was a miner, aged 53. For three or four months he had suffered from a sharp precordial pain which was brought on by exertion and which radiated to the shoulder and down the arm. His heart was of normal size (confirmed by roentgen ray), and normal in rate and rhythm. The blood pressure was 128/88 and the Wassermann reaction was negative. He was seen only three times in the clinic.

It was concluded that patients may suffer from advanced heart disease in which the physical findings, the roentgen ray and electrocardiograms are entirely normal, but that such cases are distinctly rare.

Barnes Hospital

### CLEVELAND SCHOOLS EMPHASIZE HEALTH

The health of the school child is an educational responsibility that can be discharged only by the combined efforts of many persons. This is the basis of the health service of the Cleveland public schools, which is described by Philip L. Riley in the September issue of *Hygeia*, the annual school number.

All the activities are grouped in one department, the bureau of physical welfare. The starting point is the examination of children, the correction of physical defects and the protection of the school population from communicable disease. Special surveys are made to locate hard-of-hearing children and pretuberculous children and to check up on the dental defects that are found.

In addition, definite school time, personnel and equipment are provided to care for the educational aspects of health. Lessons in nutrition and hygienic living are taught in the elementary school, and in the junior high school health is combined with science. Thus the city of Cleveland tries to make available to every child in the school system an opportunity to improve his physical condition and to follow the trail toward healthful, happy living.

### TOMATO, ONCE CALLED POISON, IS GOOD SOURCE OF VITAMINS

The United States is the world's greatest consumer of tomatoes, but the now popular vegetable has not always enjoyed such favor. In an article on the history of the tomato in *Hygeia*, Marguerite Gauger says that Americans long regarded it with suspicion and that it was not generally used as a food in this country until after the Civil War.

Miss Gauger quotes an amusing comment dated 1838: "No one regards it as nutritious since it belongs, like the mushroom and potato, to a family of plants, some individuals of which are extremely poisonous. Some persons are even injured more or less by the acid of the tomato."

In contrast here is Miss Gauger's own statement: "From infancy to old age the tomato is a good food. It is rich in mineral salts and vitamins A and B. It is recognized as one of the most important sources of these vitamins and ranks with oranges and lemons in this respect. The vitamin C in the tomato is resistant to heat, a characteristic shared by a few other foods, and so the tomato is equally valuable raw or canned. It is our most versatile vegetable, both as regards flavor and contribution to health."

### FIND HEALTHY SLEEPERS ARE REALLY RESTLESS

Surprising facts about the sleeping habits of healthy persons have been revealed by a study made by three investigators at the Mellon Institute, in Pittsburgh, Pa., described in the current issue of *Hygeia*, the health magazine published by the American Medical Association.

With the aid of the motion picture camera, the observers studied the postures assumed during an average night's sleep by 150 persons. They found that a healthy sleeper changes his position between twenty and forty-five times in a typical night of eight hours. Strangely enough, all the positions held for any length of time are contorted; the spinal column is always curved laterally, usually bowed backward and twisted. None of them indicated anything like the complete relaxation that has always been supposed to be best for sleeping.

### START NOW TO PREVENT CHILDREN'S WINTER COLDS

How can one keep children from having colds in winter?

First, guard them against infection, advises Dr. Rachel Ash in *Hygeia* for September. See that they have adequate sleep; a diet well proportioned in tissue-building and energy-contributing constituents and containing sufficient vitamins; activities planned so that the children are neither excessively stimulated nor overfatigued. In regions in which there is little winter sunshine a course of ultraviolet treatments under medical supervision will often improve the color, appetite and resistance of children.

Colds would be less frequent if more attention were paid to proper ventilation, Dr. Ash continues. Hot, dry rooms are ideal incubating chambers for disease germs. The atmosphere in them encourages the growth of germs and by producing unhealthy dryness in the tissues of the nose increases vulnerability to infection. To insure maximum efficiency of the skin, the air should be kept moist and freely moving and should be kept at a temperature of from 68 to 70 degrees.



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OCTOBER, 1930

## EDITORIALS

### OPPOSE PROPOSITION NO. 4

The attention of members is directed to a letter from the Committee on Public Policy published elsewhere in this issue\* urging opposition to the adoption of Proposition No. 4 on the ballot at the general election November 4. This proposition is an amendment to the Workmen's Compensation Law.

The Committee on Public Policy has given this amendment very earnest consideration and has been unable to find any redeeming features in it to justify its adoption. The amendment seeks to establish a state insurance fund for the payment of compensation to injured employees, but in the administration of that fund we find the commission is given full power "to contract with physicians, surgeons and hospitals for medical and surgical treatment and the care and nursing of injured persons entitled to benefits from said fund."

As the Committee in its letter so forcefully points out, this clause proposes state medicine and contract medicine. It contains all the machinery needed for establishing that obnoxious, destructive and pauperizing system called state medicine and sinks the state deeper into the mire of meddlesome medicine by thrusting upon it that other deadening system, competitive contract practice. The interests of the injured employee are utterly ignored and he is helpless. He must accept the commission's choice of physician or pay for his medical service out of his own pocket.

We see in this clause the hand of those who would force the state to set up competition between the practitioners of scientific medicine, that is those regularly graduated from reputable medical schools, and the followers of other so-called systems of healing. Every thinking person knows that the only enlightened and progressive method of treating the sick is represented by the regular medical profession. All

the other seventy-five or eighty so-called systems of healing, from osteopathy to naprapathy, are bunkum. None of them stick to their principles, if they have any, but all encroach upon the real science of medicine as far as their intelligence will permit whenever they think they can "get away with it." However, some of these systems are legally recognized as legitimate systems of healing and their followers are licensed as "physicians" hence they would be entitled to bid for some of the contracts to be parcelled out.

The Workmen's Compensation Commission may and doubtless will, under the provisions of this clause, establish state medicine and competitive contract medicine. Nowhere in the proposed amendment is there a word or a line that places a check upon the commission's excursions into the medical field for cheap medical and surgical service and cheap hospital care.

Followed to its logical conclusion may we not expect to see advertisements in the newspapers somewhat like the following:

### NOTICE TO PHYSICIANS, SURGEONS AND HOSPITALS

Bids will be received by the Workmen's Compensation Commission, Jefferson City, Missouri, for the care and treatment of injured employees entitled to compensation under the provisions of the Missouri Compensation Insurance Fund.

The Workmen's Compensation Commission reserves the right to reject any or all bids or parts thereof.

### CALMETTE'S B C G VACCINE FOR TUBERCULOSIS—REVIEW OF PRESENT STATUS

Methods of prophylactic immunization against tuberculosis have been attempted by such men as Koch, Pasteur, Baldwin, Theobald Smith, Trudeau, Pearson and Gilliland, Von Behring, and in more recent times by many others.

The Calmette-Guérin bacillus, so-called B C G, was isolated from a heifer in 1908 by Calmette and his associates. It was determined to be the bovine type of tubercle bacillus and to possess only moderate virulence for cattle, rabbits and guinea pigs. Continuous cultivation over a period of years on glycerinated ox bile potato medium has reduced the virulence of the organism so that at present only small localized tubercles are produced in experimental animals which heal within a few months. These investigators further state that the vaccine is able to produce skin hypersensitiveness, and immunity against infection with virulent tubercle bacilli.

Calmette's opinion in regard to prophylactic

\* See page 510.

immunization against tuberculosis is based on extensive experimentation made especially on cattle. He first recommended that new-born infants be fed B C G, and it was so administered in 1921 at the Maternity Hospital in Paris. Since that time many infants have been given this prophylactic vaccination, but only a relatively small number of them have been recorded in statistical studies, and the reports of Calmette have been attacked as being statistically incorrect. Calmette is convinced of the innocuousness of the vaccine and of its efficacy to immunize against tuberculosis, and many workers have found the bacillus to be non-virulent for small laboratory animals. Other workers have been able to produce progressive disease, and Nobel and Gerlach carried the lesion successively from guinea pig to guinea pig.

Petroff and Branch have produced progressive tuberculosis and death in guinea pigs and have dissociated the original Calmette culture into two strains—the "R" type, which always produces some tubercles that in time heal, and the "S" type, which invariably produces progressive disease in the guinea pig terminating in death.<sup>1</sup>

Practically all investigators in the production of immunity to tuberculosis have been of one opinion, namely, that the use of the living organism was necessary and that the inoculation of dead bacilli in experimental animals yielded little or no immunity. These contentions formed the basis for the work of Calmette and his associates.<sup>2</sup>

Intradermal vaccination with B C G has given most encouraging results, in the opinion of Wallgren (Sweden). To quote: "I can only say that up to the present time no vaccinated child has developed tuberculous disease after having been exposed in its home."<sup>3</sup>

The innocuousness of the B C G has been repeatedly challenged in the literature, the criticism being based on experiences with experimental animals and with human cases vaccinated by the Calmette method. However, it has been repeatedly pointed out that in those instances where clinical tuberculosis occurred following the use of B C G, the difficulty has been to prove that the B C G caused the tuberculosis rather than that the tuberculosis was an associated intercurrent infection of human or bovine origin.

The degree and duration of immunity from the B C G vaccination have likewise been vigorously attacked in the literature, it being stated that since such children are under constant medical supervision it is this supervision which

is responsible for the apparent benefit, and not that benefit is derived from the vaccine.

Calmette vigorously defends his contention of the efficacy of the B C G vaccination against tuberculosis. Furthermore, he states that a reversion of the B C G to virulence is very unlikely to happen. Petroff's experiments, which alleged such an occurrence, have been repeated at Pasteur Institute with negative results.<sup>4</sup>

A somewhat startling tragedy occurred recently in Germany in connection with the use of the B C G vaccine which should be given careful consideration by all physicians.

On the 27th day of July, 1929, Calmette sent a culture of the B C G strain, Number 734, to Obermedizinalrat Dr. Altstaedt, director of the Lubeck Gesundheitamt. With this same culture 573 children had been inoculated in France without apparent harm; parallel cultures had been sent to Mexico and to Riga and nothing unfavorable heard from them. In Lubeck an organized campaign in favor of inoculation with this culture was begun by propaganda, lectures to physicians, instruction of midwives, etc., and extended to February, 1930. In the meantime, the culture was kept in the laboratory of Prof. Deycke in the Allgemeines Krankenhaus in Lubeck and grown, at first, upon bile potato medium, then later upon the Hohn egg medium, in part upon hematin egg medium and at the last only upon the egg medium. Transfers were made every four weeks by an experienced laboratory helper who had been with Deycke 17 years. The medium recommended by Calmette (synthetic fluid of Sauton) was not used. For the growth of the cultures and the preparation of the material for inoculation no completely separate compartment was used. No virulent human tubercle bacilli were present in the incubators until September, 1929, the earlier cultures present having been killed by heating to 80° C. In September, Deycke obtained a virulent strain of human tubercle bacilli which was placed in the same compartment with the B C G inoculation preparations. As to the possibility of any mistake in the cultures, the B C G cultures were grown exclusively on solid media, the virulent strain on fluid media. The inoculations were carried out in the children through the midwives exactly according to the French method, and the whole organization met the requirements of the French model. A dose (10 mg.) of the culture material as prepared for inoculation was given by mouth three times. About 50 per cent of all children born during the critical 60 days were inoculated, the total number of inoculated being 245. Reports in July, 1930, indicate that more than 50 deaths had already resulted from the vaccination and

1. King, Merrill J., and Park, W. H.: *Am. J. Pub. Health*, 19:179, 1929.

2. Webb, G. B.: *J. A. M. A.* 93:1459, 1929.

3. Wallgren, Arvid: *J. A. M. A.* 91:1876, 1928.

4. Calmette, A.: *Wien. klin. Wchnschr.* May, 1928.



more may be expected, for many of those still living show clinical manifestations of tuberculosis.<sup>5</sup>

In the height of his excitement, Deycke, on the 26th of April, destroyed all that remained of the inoculation material in his laboratory. This on the face of it would seem to have been a most unwise act, as it prevented further study of the material used for inoculation. It may be accepted without doubt that the culture originally sent by Calmette was in truth avirulent; this would seem to be proved beyond all doubt by the harmlessness of its use in France and elsewhere.

There are but two possible explanations of the Lubeck tragedy: (1) Either there occurred in Lubeck *in vitro* a reversion of the culture to the virulent form, or (2) the Calmette culture was exchanged for or contaminated with virulent tubercle bacilli.

The number of infants inoculated with the B C G cultures must now reach between 300,000 and 400,000. Of these over 242,000 are in France. With no untoward experience upon such a large quantity of material, any harmful effect of the inoculation, any virulence of the culture, or any acquired virulence in the bodies of the inoculated children, would certainly seem to be wholly excluded.<sup>6</sup>

It is of interest to mention in this connection that Park, Kereszturi, and Schick, of the New York City Department of Health, are using the B C G vaccine with encouraging results. However, their series is at present too small and their observations too brief from which to draw definite conclusions.

The Calmette B C G vaccine is by no means proved to be ready for popular use and therefore it should be decidedly left in the hands of those who are especially trained in the investigation of its usefulness. Out of this may come a safe and efficacious means of prophylactic immunization against tuberculosis, but until that time arrives the general profession must be content with time proved methods of combating the disease.

The unexplained Lubeck experience stands as an isolated disaster in the use of the B C G vaccine and should not prejudice investigators against further research into this method of immunization.

#### CHARGES OF MISMANAGEMENT AT FEDERAL SOLDIERS' HOME UNFOUNDED

When charges were made some months ago that the Federal Soldiers' Home at St. James

was so badly managed that the conditions in the home constituted a disgrace to the state, we reserved any comment until an investigation which had been promised by Governor Caulfield could be made. We seriously doubted even a modicum of truth or substantial foundation of the charges because the physician in charge of the home is Dr. William H. Breuer, a former president of our Association and a man whose entire career, professional and public, is in itself sufficient to deny the existence of such conditions while he was connected with the institution. Dr. Breuer has been surgeon of the home for ten years.

The charges emanated from the United Spanish War Veterans who passed a resolution at their meeting condemning the home, and from a Jacob Kuhl, of St. Louis, who it is said made similar charges.

A committee appointed by Governor Caulfield to investigate the charges was composed of the heads of veterans' organizations who required Kuhl to accompany the committee. According to press reports the committee found that Kuhl could not substantiate any of his allegations. The committee reported that they had interviewed occupants in all the buildings and that not one complaint was made. The report says, "In fact they seemed anxious to say that they were not only well satisfied, but happy and contented."

The investigating committee urged that the next legislature appropriate sufficient funds for a 100-bed fireproof hospital to take the place of the one destroyed by fire last April.

#### PHYSICAL THERAPISTS HONOR DOCTOR EWERHARDT

Dr. F. H. Ewerhardt, St. Louis, professor of physical therapeutics at Washington University School of Medicine, was chosen president-elect of the American Congress of Physical Therapy, at the ninth annual session held in St. Louis October 8 to 13. Dr. Roy W. Fouts, Omaha, was installed as president of the organization for 1930-1931.

Clinics, instruction classes, lectures, demonstrations and scientific and technical exhibits were features of the meeting. Sessions were held at the Hotel Jefferson.

Advantages of the new electric knife were discussed by Dr. Disraeli Kobak, Chicago, and Dr. Cleveland H. Shutt, St. Louis. It was pointed out that there is practically no bleeding, the tissues heal with little or no scar and the knife cuts cleanly without pressure.

The shortening of hay fever seasons and the relieving of asthma by use of ultraviolet radiation were described by Dr. Carl B. Sputh, Indianapolis.

5. Paris Letter, J. A. M. A. 95:352 (Aug. 2) 1930; Berlin Letter, J. A. M. A. 95:356 (Aug. 2) 1930.

6. Ann. Int. Med. 4:190, 1930.

A motion picture showing the effect of radium on cancer cells was shown by Dr. Louis H. Jorstad, St. Louis.

Heliotherapy as a practical specific for many forms of tuberculosis was described by Dr. Benjamin Goldberg, director of the Municipal Tuberculosis Hospital, Chicago. He pointed out its uses in the healing processes of rickets, tetanus and other diseases. Participating in the symposium on tuberculosis were Dr. Alexius M. Foster, Colorado Springs; Dr. N. J. Seybold, Toledo; Dr. S. H. Watson and Dr. R. J. Callander, Tucson, Arizona; Dr. J. J. Singer and Dr. G. D. Kettelkamp, St. Louis. Dr. E. E. Glenn, superintendent of the Missouri State Sanatorium at Mount Vernon, was the author of a paper in which he described the treatment of laryngeal tuberculosis at the state institution.

Dr. O. B. Nugent, professor of ophthalmology at the Chicago Eye, Ear, Nose and Throat Hospital, advanced the view that the newer method of treating ulcers of the cornea with ultraviolet radiation was far superior to the older means of treatment.

Electrical destruction of cancer and the subsequent influence of radium although far from the ideal method give results superior to those obtained by the most skilfully performed operations executed by the knife, said Dr. Gustav Kolischer, Chicago.

Dr. W. L. Cahall, Utica, New York, and Dr. John H. Vaughn, Amarillo, Texas, argued against the universal treatment of tonsils by removal. Dr. Frederick B. Balmer and Dr. A. R. Hollender, Chicago, held that surgical removal was still the most satisfactory method but suggested that electrosurgery was valuable as an adjunct. This discussion was conducted before the eye, ear, nose and throat section of the conference and was participated in by Drs. R. H. Fraser, C. E. Roderick, Battle Creek, Michigan; Arthur W. Proetz, St. Louis; J. H. Hester, Louisville, and J. H. Cottle, Chicago.

Dr. George Gellhorn, St. Louis, lectured in the surgical section on the use of diathermy in pelvic diseases. Other speakers were Dr. Albert F. Tyler, Omaha; Dr. Harold Swanberg, Quincy; and Dr. William Wallace Walker, Baltimore.

Dr. Austin A. Hayden, Chicago, appealed to physicians to cooperate in efforts to further the work with the hard of hearing.

Dr. Max Thorek, Chicago, gave a lecture illustrated with motion pictures on the treatment of obesity by surgical and physical methods.

Several research problems will be started under the direction of the congress in leading medical schools during the next year. This is

in keeping with the purposes of the congress to institute a research foundation for conducting investigations in problems of heat, light and electricity as aids to medical and surgical treatment. The results of such investigational studies will become the property of the congress and be utilized by the research workers. The plan entails the appointment of fellowships in several leading universities, these honors to be bestowed upon graduate students seeking higher degrees.

Omaha was selected as the next meeting place.

## KANSAS CITY CLINICAL CONFERENCE

The Eighth Annual Fall Clinical Conference of the Kansas City Southwest Clinical Society will be held in Kansas City, October 6 to 10, with headquarters at the Hotel President. Operative and diagnostic clinics will be conducted at allied hospitals in Greater Kansas City each morning from 8:00 to 11:30 o'clock. Postgraduate courses will be given on October 8, 9, and 10 from 9:00 to 12:00 a. m. in which various phases of different branches of medicine and surgery will be taken up in hour discourses by men especially qualified to conduct the classes. Clinical lectures will be given each afternoon and round-table luncheons will be held each day beginning with October 7. Evening entertainment includes a public meeting, a get-together smoker, a dance, and the showing of a laparotrachelotomy film. The general subjects to be taken up in the postgraduate classes are obstetrics, medicine, heart, gastro-intestinal tract, genito-urinary, chest, nose and throat, rectal, eye, arthritis, orthopedics, roentgenology, surgery and pediatrics.

Hospitals cooperating include Bell Memorial, Bethany Methodist, Mercy, General, Research, St. Joseph's, St. Mary's, St. Luke's and Trinity Lutheran.

Approximately 1,500 physicians of Missouri, Kansas, Nebraska and Oklahoma are expected to attend.

A joint meeting with the Kansas City Society of Ophthalmology and Otolaryngology will be held October 7.

## PROPOSED IMPROVEMENTS IN KANSAS CITY HOSPITAL SYSTEM

Recommendations for five major improvements in Kansas City's health system were adopted at a meeting, September 4, of the subcommittee on hospitals and clinics for the Ten-Year-Plan. Dr. Robert McE. Schaufler is chairman of the committee. The recommendations follow:



A nurses' home for General Hospital No. 2 (Negro), to cost from \$125,000 to \$150,000.

A proposal of \$75,000 to acquire additional ground or a new site for the United States Veterans' Hospital.

To obtain an estimate of cost for a central heating and power plant for the buildings on Hospital Hill.

Improvement at Leeds Sanitarium to include a ward for fifty children.

Adequate facilities for educating nurses under the supervision of the school board.

The proposal for a nurses' home for General Hospital No. 2 was submitted by Dr. T. C. Unthank. The nurses are housed in the new hospital and the space they occupy will soon be needed for patients.

Dr. Katharine Richardson, a member of the subcommittee, advocated better facilities in the public school system for educating and training nurses, the burden being placed upon the hospitals at present. She contended that the facilities of junior college where a five-month preliminary course for nurses is given, should be enlarged.

Dr. Schauffler was of the opinion that hospital maintenance should be taken out of politics by raising the money by a special tax instead of by council appropriation. He recommended that a nonpartisan or bipartisan body similar to the school board be put in charge of hospital maintenance. In commenting on Dr. Schauffler's statement, the *Kansas City Times* said: "The community is more than willing to be generous in taking proper care of those who cannot afford to pay for medical attention, and if the committee works out a sensible program, there is little doubt that a bond proposed to take care of hospital needs will be successful at the polls."

## NEWS NOTES

There were 2,000 cases of smallpox reported in Missouri during the first seven months of 1930, according to a report from the State Health Department. During the same period last year there were 1087 cases.

The St. Louis Trudeau Club will hold its regular meeting Thursday, October 2, at 8:15 p. m. in the St. Louis Medical Society building. The scientific program follows: "Chest Surgery on the Continent," Dr. J. L. Mudd. "Discussion of Present Status of Calmette's B C G Vaccine for Tuberculosis," opened by Dr. Howard H. Bell. Officers for the ensuing year will be elected. Members of the State Medical Association are invited to attend.

Dr. B. J. McMahon, St. Louis, will be on the program of the instructional course held by the American Academy of Ophthalmology and Oto-Laryngology in Chicago, October 27 to 31. His subject will be "Histopathology of Mastoiditis."

Dr. M. W. Pickard, Kansas City, chief surgeon for the Kansas City Terminal Railway Company, sailed from New York September 19, for Trieste and Constantinople. He will go on to Vienna for study, returning home in about two months.

Only Missourians will be offered positions as attendants at the state hospital for the insane at St. Joseph and other state hospitals in the future, according to a new policy announced by Mr. Roy Monier, president of the Eleemosynary Board. The reason for the change of policy was given as an attempt to offer employment to worthy people of the state who are victims of the drouth and unemployment and to eliminate the "professional" attendant who works for a time and then moves on to another city.

The new Jackson County Hospital at Little Blue was completed September 15 and 130 bedridden patients at the county home which is adjoining were moved into the hospital. Forty persons formerly cared for in Kansas City but who were properly patients of the county were moved into the new hospital. The hospital consists of three units connected by corridors, the middle unit four stories high and the others three stories each. The two side buildings are used mainly as infirmaries. The central building has the administration offices on the first floor and operating room on the fourth. The hospital has 200 beds.

A ten-acre game preserve is to be established at State Hospital No. 2, St. Joseph, according to Mr. Roy Monier, president of the Eleemosynary Board. The preserve will furnish the hospital with a wholly new means of curative recreation for certain types of patients and provide the game department with an experiment station in the state's third largest city. The project will be sponsored jointly by the eleemosynary board and the state game and fish department and is to be maintained by the patients at the hospital. The tract will be enclosed by a high fence and stocked by the game department with various birds and small animals. It has been announced that if this experiment proves successful, similar preserves will be established at the six institutions for mental diseases in the state.

Dr. Ellis Fischel, St. Louis, was a guest of the Colorado State Medical Society at its sixtieth annual meeting held in Pueblo, September 9 to 11, and delivered an illustrated address on "Treatment of Cancer of the Lower Lip."

Appropriations amounting to \$139,500 were released August 21, by Governor Caulfield. Of this amount \$42,500 went to State Hospital No. 2, St. Joseph, to replace buildings destroyed by fire. Another \$42,000 was released to other state hospitals and eleemosynary institutions in small amounts for support, furniture, supplies, and other routine requirements.

The examination of candidates for commission as assistant surgeon in the Regular Corps of the United States Public Health Service will be held at Washington, D. C., Chicago, New Orleans and San Francisco on November 3. Candidates must be twenty-three years and not over thirty-two years of age. They must have been graduated in medicine at a reputable medical college, and have had one year's hospital experience or two years' professional practice. They must satisfactorily pass oral, written and clinical tests before a board of medical officers, and undergo a thorough physical examination. Successful candidates will be recommended for appointment by the President. Requests for information or permission to take this examination should be addressed to the Surgeon General, U. S. Public Health Service, Washington, D. C.

The proceedings of the 1929 annual conference of the National Society for the Prevention of Blindness have been published. Reports from cooperating organizations are incorporated, including the following Missouri organizations: State Board of Health, State Bureau of Mines, State Department of Labor and Industrial Inspection, Missouri Commission for the Blind, Missouri Association for the Blind, St. Louis Public Schools, American Legion, Ophthalmic Section of the St. Louis Medical Society, Missouri Social Hygiene Association, and Sight-Saving Class Supervisors and Teachers.

The addresses at the conference which are published in the proceedings were divided into the following symposiums: Conserving Vision in Industry, Social Hygiene in Relation to Prevention of Blindness, Trachoma, and Vision Justice for the Young Child.

Missouri physicians on the program were Dr. W. C. Gibson, Jefferson Barracks; Dr. Harvey J. Howard, St. Louis; Dr. Charles Weiss, St. Louis; Dr. Paul D. Mossman, Rolla; and Dr. John F. Hardesty, St. Louis.

A general practitioner is needed in Howell, St. Charles County, Missouri. This is a rural community connecting by all-weather gravel road with St. Charles, eighteen miles distant. There is a high school. For additional information, address Mrs. D. B. Pitman, Box 200, R. F. D., Hamburg, Missouri.

Dr. Charles Wood Fassett, Glendale, California, formerly of St. Joseph and Kansas City, was honored by a testimonial banquet, June 13, given by the Pacific Physiotherapy Association in celebration of his forty-seventh year as a medical journalist and physician. Dr. Fassett has edited the *Medical Herald and Physiotherapist* since about 1885. About January 1, 1930, Dr. Fassett moved to California. He is a former president of the Missouri Valley Medical Society and is a charter member of the Buchanan County Medical Society.

The fifty-fourth annual meeting of the Southeast Missouri Medical Association will be held at the Ducker Hotel, Poplar Bluff, October 7 and 8, under the presidency of Dr. M. H. Shelby, Cape Girardeau. Sessions will be held in the morning, afternoon, and evening of Tuesday, October 7, and morning and afternoon of Wednesday, October 8. The annual dinner will be given at the Ducker Hotel, Tuesday evening, October 7. Members desiring to attend the dinner are requested to inform Dr. J. Lee Harwell, Poplar Bluff.

Dr. Richard L. Sutton, Kansas City, professor of dermatology in the University of Kansas School of Medicine, globe-trotter and hunter of big game, gave an illustrated lecture before the St. Louis Medical Society September 16, on his hobby of big game hunting. His lecture, "The Long Trek," was based on his last trip of nine months into Africa. Besides being affiliated with numerous medical organizations Dr. Sutton is a fellow of the Royal Geographical Society and a member of the French Geographical Society.

Dr. Alexis F. Hartmann, St. Louis, associate professor of pediatrics, Washington University School of Medicine, was a guest of the Michigan State Medical Society at its one hundred and tenth annual meeting held in Benton Harbor, Michigan, September 15 to 17, and delivered an address on "Acidosis, Alkalosis, and Dehydration." In his talk he discussed the chemical composition of the body fluids and the normal means of their maintenance, the effects of various abnormal conditions which lead to dehydration with acidosis or alkalosis, and a simple rational means of therapy.



*The Indian Medical Record*, edited by Santosh Yumar Mukherji, M. B., Calcutta, India, celebrated its Golden Jubilee this year by two special issues, one in February and one in September. The *Record* was established by the late Dr. James Robert Wallace in 1880, and later became the organ of the Indian Medical Association when that organization was established. During its existence the *Record* has taken an active part in campaigns against tuberculosis, kala-azar, leprosy, venereal disease, and epidemic dropsy, has been instrumental in promoting the study of diseases of internal secretion and indigenous drugs and encourage higher standards of medical education in India.

The following articles have been accepted for New and Nonofficial Remedies:

International Vitamin Corporation

I. V. C. Vitamin Concentrate of Cod Liver Oil

National Drug Co.

Antimeningococcic Serum

Parke, Davis & Co.

Gas-Gangrene Antitoxin (Combined) Refined and Concentrated

Soluble Gelatin Capsules Parke, Davis & Company's Standardized Cod Liver Oil, 10 minims

Soluble Gelatin Capsules Parke, Davis & Company's Standardized Cod Liver Oil, 20 minims

Soluble Gelatin Capsules Parke, Davis & Company's Standardized Cod Liver Oil, 2.5 Gm.

Soluble Gelatin Capsules Parke, Davis & Company's Standardized Cod Liver Oil, 5 Gm.

G. D. Searle & Co.

Chiniofon—Searle

Tablets Chiniofon—Searle, 0.25 Gm. (4 gr.)

C. M. Sorensen Co., Inc.

Inhalant Chloretone Creosote and Eucalyptol—Sorensen

Spicer & Co.

Tartro-Quiniobine

Tartro-Quiniobine Ampules, 2 c.c.

White Laboratories, Inc.

White's Cod Liver Oil Concentrate

Nonproprietary Articles

Quinine Bismuth Iodide

Sodium Potassium Bismuthyl Tartrate

The following article has been exempted and included with the List of Exempted Medicinal Articles (New and Nonofficial Remedies, 1930, p. 477):

C. M. Sorensen Co., Inc.

Inhalant Pine Camphor and Eucalyptol—Sorensen

Under the presidency of the Rev. Alphonse Schwitalla, St. Louis, dean of the St. Louis University School of Medicine, the fifteenth annual convention of the Catholic Hospital Association of the United States and Canada met in Washington, D. C., September 2 to 5. Six hundred and forty-one hospitals were represented at the meeting and Father Schwitalla was reelected president of the association.

Other St. Louisans who read papers or officiated at the convention are Dr. Goronwy O. Broun, associate professor of internal medicine at St. Louis University; Miss Irene Morris, director of the social service department of St. Mary's group of hospitals; Mother Concordia, Mother General of the Sisters of St. Mary; Sister Irene, her associate; Dr. E. Lee Shrader, of the St. Louis University health service; Sister Mary Brendan, of St. John's Hospital; and Sister M. Felican, O. S. F., of the school of nursing at St. Anthony's Hospital.

The Central Association of Obstetricians and Gynecologists will meet in Kansas City, October 9, in conjunction with the Kansas City Southwest Clinical Society. Members of the association will cooperate with the Clinical Society in conducting clinics in the morning and will hold a symposium on normal labor in the afternoon. Among those scheduled to read papers in this symposium are Dr. L. A. Calkins, Kansas City, on "Management of the Third Stage"; Dr. Fred J. Taussig, St. Louis, on "Breech Presentation"; Dr. G. D. Royston, St. Louis, on "Prenatal Care"; Dr. Fred L. Adair, Chicago, on "Management of the First and Second Stages of Labor"; Dr. Jennings C. Litzenberg, Minneapolis, on "Occiput Posterior"; and Dr. Rudolph W. Holmes, Chicago, on "Prolonged Labor."

On Friday and Saturday mornings, October 10 and 11, the association will conduct its scientific sessions at the Hotel Elms, Excelsior Springs.

Dr. R. R. Spencer, United States Public Health Service, was awarded the Gold Medal by the American Medical Association at the Detroit session last June, for original work in the preparations of a vaccine against Rocky Mountain spotted fever. A five-year record of practical prevention of the fever achieved by Dr. Spencer was the basis for the award of the medal. In one large locality the disease caused the death of 85 per cent of adults who contracted it in the twelve years, 1917 to 1928. In that locality the quest for a preventive was pursued under the direction of Dr. Spencer until in 1924 came the discovery the results of which were presented to the American Medical Association. Until 1924 laboratory workers en-

gaged in the search for a preventive were often stricken with the disease. Of sixteen of the earlier workers so exposed six contracted the disease and all died. Since 1924 there have been fifty-nine laboratory workers, seven of whom contracted the disease but all recovered except one who had received only one of the two requisite inoculations.

The Secretary of the Treasury has recently accepted a gift of \$100,000 in behalf of the National Institute of Health. The donation was offered by the Chemical Foundation, Inc. The condition is made that the income from this fund be used for one or more fellowships in basic chemical research in matters pertaining to public health, the details being left to the Surgeon General of the United States Public Health Service and his advisory council.

The National Institute of Health, successor to the Hygienic Laboratory, was created by an act of Congress, May 26, 1930. Senator Joseph E. Ransdell, of Louisiana, was author of the measure. The general purposes of the act are to provide larger facilities for investigating the diseases of man and matters pertaining to the public health, to encourage research in health problems and train individuals for this service, and to promote cooperation with scientific institutions in the prosecution of research work.

The law permits the Secretary of the Treasury to accept donations of money from private sources. The donation from the Chemical Foundation is the first contribution to the institution under this provision of the act.

## OBITUARY

### TIMOTHY DANIEL GORDON, M.D.

Dr. Timothy D. Gordon, Dora, licensed by years of practice March 17, 1884, died of chronic nephritis May 12, 1930, aged 70.

Dr. Gordon attended public school in Cedar-grove and practiced medicine there from 1886 to 1904. He practiced two years in Bunker, locating in Dora in 1906, where he practiced until his death. He was a member of the Howell-Oregon-Texas County Medical Society.

### WILLIAM KENNET STATLER, M.D.

Dr. William K. Statler, Oak Ridge, a graduate of Marion-Sims College of Medicine (now St. Louis University School of Medicine), St. Louis, 1901, died June 2, 1930, of carbolic acid poisoning, aged 52.

Dr. Statler received his preliminary education in Oak Ridge high school. After he completed his medical education he located in Oak

Ridge and was in general practice there for twenty-nine years with the exception of the time he served during the World War.

He was a member of the Cape Girardeau County Medical Society and a Fellow of the American Medical Association.

### MARTIN Y. O'BRIEN, M.D.

Dr. Martin Y. O'Brien, Bloomsdale, a graduate of the St. Louis College of Physicians and Surgeons (now Missouri College of Medicine and Science), 1897, died of acute dilatation of the heart, July 11, 1930, aged 55.

Dr. O'Brien had been in general practice in St. Louis and near-by towns since his graduation, with the exception of four years spent in Kansas City. He was a member of the Ste. Genevieve County Medical Society.

### ROBERT HAROLD MORRIS, M.D.

Dr. Robert H. Morris, Kansas City, a graduate of Barnes Medical College, 1896, and of Tulane University of Louisiana School of Medicine, New Orleans, 1914, died August 24, 1930, of cerebral hemorrhage, aged 54.

Dr. Morris had practiced medicine in Kansas City since 1918. He had practiced in Eversonville three years and in Linneus 18 years previous to locating in Kansas City. He was a captain in the medical corps of the 35th division during the World War. He was a member of the Jackson County Medical Society.

He leaves one daughter, Miss Mary Morris, Chicago.

### DAVID I. BLANFORD, M.D.

Dr. David I. Blanford, Kansas City, a graduate of the University Medical College of Kansas City, 1903, died August 8, 1930, aged 57.

Dr. Blanford, a native of Pittsburgh, Pennsylvania, was brought to Kansas City by his parents in 1876. He received his preliminary education at Rosedale high school in Kansas City and after completing his medical course located there and maintained a general practice during his twenty-seven years in medicine. He was a member of the Jackson County Medical Society and of the staffs of St. Mary's and Vineyard Park hospitals.

He is survived by his widow, Mrs. Edith Blanford; a son, Ross Blanford; one brother and one sister.

### WILLIAM JOSEPH SAY, M.D.

Dr. William J. Say, St. Louis, a graduate of the Missouri Medical College (now Washington University School of Medicine), 1895, died



August 7, 1930, aged 63. During the extreme heat of July and August Dr. Say suffered heat prostration and had been in ill health since that time.

Dr. Say was born in Boston, Massachusetts, and received his preliminary education in the Cambridge, Massachusetts, high school. After coming to Missouri he took up the study of medicine. Soon after his graduation he was appointed superintendent of the Polyclinic Hospital and Dispensary which was affiliated with the Missouri Medical College. He spent about a year and a half in the medical corps of the United States Army.

Since 1901 Dr. Say had practiced medicine in St. Louis where he enjoyed a wide and lucrative practice and was highly esteemed. He was a member of the St. Louis County Medical Society and a Fellow of the American Medical Association.

He is survived by his widow, Mrs. Daisy P. Say, and two daughters.

## CORRESPONDENCE

### RECOMMENDS OPPOSING AMENDMENT TO WORKMEN'S COMPENSATION ACT

Eldon, September 22, 1930.

*To the Editor:*

The Committee on Public Policy of the Missouri State Medical Association has carefully considered the proposed amendment to the Workmen's Compensation Act to be voted on at the general election November 4, 1930, known as Proposition No. 4, and recommends that this amendment be opposed by the medical profession for the following reasons:

The proposed amendment gives the Workmen's Compensation Commission full power "to contract with physicians, surgeons and hospitals for medical and surgical treatment and the care and nursing of injured persons entitled to benefits from said fund."

This clause proposes state medicine and contract medicine, two forms of practice that have brought medicine into disrepute wherever they have been established. It was included in the amendment without consultation with the organized medical profession of the state and is so inimical to the interests of the public as well as of reputable medicine that your Committee believes our Association has no choice other than to oppose the adoption of Proposition No. 4.

It is known that approved hospitals will take compensation cases only at regular rates. If the cost of hospital service is a determining factor, unapproved hospitals could be selected thus lessening the workmen's chance for adequate treatment. Furthermore, there is nothing to prevent the commission from entering into an agreement or a contract with municipal and county hospitals for the treatment of compensation cases. The staff physicians would then render treatment free as the law in many communities forbids members of a visiting staff to receive compensation for their services.

Again, if the family physician rendered treatment in lieu of the physician selected by the commission the family physician would receive no compensation

unless he was paid by the patient. As far as your Committee can determine there would be no "implied contract" with the commission, hence no obligation on the part of the commission to pay for services rendered.

Local taxation would naturally be increased because the amendment compels the state, counties, cities and all political subdivisions to insure their employees against liability with the state fund.

While the present act is unfavorable to physicians as well as to employees in many respects, chiefly because it does not permit the employee to select his own physician and because of the small amount, \$250, allowed for the first sixty days, yet the act does permit the employer to select the physician thus distributing the medical service among many physicians. Under the proposed amendment there is nothing to prevent the commission or its agents from selecting physicians geographically or because of political affiliation.

This letter is sent to you with the request that it be published in the October JOURNAL at the suggestion of the Executive Committee of the State Association, after the Committee had adopted a motion to oppose the adoption of Proposition No. 4.

Committee on Public Policy

W. LOGAN ALLEE, Chairman

ROBERT VINYARD

W. T. ELAM

### COLLEGE HEALTH PROGRAM AIMS TO CARRY INTEREST INTO STUDENT'S LATER LIFE

The modern college health program has as its aim the graduation of students whose health has been protected in college, who have a reasonable amount of health knowledge and who have been taught to apply their knowledge in the form of health practice.

To accomplish this the ideal health department in college embraces three phases, according to the plan favored by Dr. Earl F. Morris, who describes it in *Hygeia* for September. These are: Health service to students while in college, health instruction and health practice.

The first requisite of such a service is a thorough physical examination of every student at least once a year. Then there should be a check-up during the year to find whether progress is being made in the correction of physical defects.

Just how much actual treatment to include in a college health service is a problem. On the whole it seems best not to attempt the treatment of conditions that require prolonged care, Dr. Morris thinks, but preventive treatments such as vaccination offer the college an opportunity to demonstrate that an ounce of prevention is really worth a pound of cure.

Health instruction is most successful when it is combined with health service, because information gained at a time when a health problem is pressing is vital and makes a lasting impression.

Health practice is considered as synonymous with physical activities or physical education, though it should include all the health measures advocated by the health department.

Throughout the program emphasis is placed on the carrying over of the physical activities into later life. Before he has left college the student should have had the value of a wholesome diet and of regular medical and dental inspections indelibly stamped on his mind; and in addition he should be prepared to be a leader in the movement for better health in his community.

## SOCIETY PROCEEDINGS

### COUNTY SOCIETY HONOR ROLL FOR 1930

(UNDER THIS HEAD WE LIST SOCIETIES WHICH  
HAVE PAID DUES FOR ALL THEIR MEMBERS)

#### HONOR ROLL

Mercer County Medical Society, December 12, 1929.

Madison County Medical Society, December 16, 1929.

Benton County Medical Society, January 8, 1930.

Pulaski County Medical Society, January 11, 1930.

Webster County Medical Society, January 24, 1930.

Chariton County Medical Society, January 27, 1930.

Ralls County Medical Society, March 6, 1930.

Camden County Medical Society, March 10, 1930.

Dent County Medical Society, April 2, 1930.

Schuyler County Medical Society, April 5, 1930.

Platte County Medical Society, April 7, 1930.

Christian County Medical Society, April 7, 1930.

Macon County Medical Society, April 12, 1930.

Miller County Medical Society, April 14, 1930.

Phelps County Medical Society, April 25, 1930.

Atchison County Medical Society, April 30, 1930.

Lafayette County Medical Society, May 9, 1930.

St. Louis County Medical Society, August 26, 1930.

### LAWRENCE-STONE COUNTY MEDICAL SOCIETY

A very interesting meeting of the Lawrence-Stone County Medical Society was held in the Bank Hotel, Aurora, Tuesday, September 2, at 7:00 p. m., the president, Dr. J. W. Smith, Verona, presiding. About sixteen physicians were present. A banquet preceded the meeting.

Through the courtesy of the Postgraduate Committee of the State Association, Dr. A. A. Werner, St. Louis, gave a lecture on "The Menopause; Artificial and Natural."

Dr. Werner's talk was comprehensive and well delivered and was much enjoyed by those present.

R. D. COWAN, M.D., Secretary.

### MARION COUNTY MEDICAL SOCIETY

The Marion County Medical Society met Friday evening, September 5, at Hannibal. The meeting was preceded by a banquet at which over thirty physicians were present. We had as our guests Dr.

Otto J. Wilhelmi and Dr. A. J. Raemdonck, of St. Louis, who were sent to us through the courtesy of the Postgraduate Committee of the State Association.

Dr. Wilhelmi gave an illustrated talk on "Points in Urology of Especial Interest to the General Practitioner."

Dr. Raemdonck read a paper entitled "A General Survey of Diseases of the Gastro-Intestinal Tract." He elaborated his discussion of the subject by black-board sketches.

Both addresses contained many items of great interest to the general practitioner and were received with much enthusiasm.

Dr. J. B. Stokes, Hannibal, was elected a member of the Society by transfer from the Randolph-Monroe County Medical Society.

H. B. GOODRICH, M.D., Secretary.

## WOMAN'S AUXILIARY

### OFFICERS 1930-31

President, Mrs. A. W. McAlester, Kansas City.

President-Elect, Mrs. U. J. Busiek, Springfield.

1st Vice President, Mrs. C. M. Sneed, Columbia.

2nd Vice President, Mrs. H. B. Goodrich, Hannibal.

3rd Vice President, Mrs. R. S. Kieffer, St. Louis.

4th Vice President, Mrs. W. L. Kenney, St. Joseph.

Recording Secretary, Mrs. David S. Long, Harrisonville.

Treasurer, Mrs. R. C. Haynes, Marshall.

Auditor, Mrs. C. T. Ryland, Lexington.

### MRS. A. B. MCGLOTHLAN, PRESIDENT-ELECT, NATIONAL WOMAN'S AUXILIARY

The Woman's Auxiliary of the Missouri State Medical Association is justly proud of the election of Mrs. A. B. McGlothlan, of St. Joseph, as president-elect of the National Woman's Auxiliary at the Detroit session last June. When it is remembered that the national auxiliary came to Missouri for its president-elect in 1928 when Mrs. George H. Hoxie, of Kansas City, was honored with the high office, the selection of Mrs. McGlothlan within a year of the expiration of Mrs. Hoxie's term of office as president, can mean but one thing and that is that the Missouri Auxiliary in its brief career—it was organized in 1924—has produced women of such outstanding ability and effectiveness in auxiliary affairs that the national organization was compelled to draft two of their presidents from Missouri within a period of two years.

Mrs. McGlothlan is a charter member of the Missouri Auxiliary and has been one of the outstanding Buchanan County workers in extending the influence of the auxiliary among lay organizations. She has been especially successful in increasing Hygeia subscriptions and was one of the first workers to place Hygeia in the public schools. Practically every public school in Buchanan County receives Hygeia regularly largely through subscriptions donated by the Buchanan County Medical Society and individuals whose interest was aroused by the effective work of Mrs. McGlothlan.



## TRUTH ABOUT MEDICINES

### ACCEPTED DEVICES FOR PHYSICAL THERAPY

The following have been accepted by the Council on Physical Therapy of the American Medical Association for inclusion in its list of accepted devices for physical therapy:

PARKE, DAVIS & COMPANY'S COD LIVER OIL WITH VIOSTEROL 5 D.—A brand of cod liver oil with viosterol 5 D.-N. N. R. (New and Nonofficial Remedies, 1930, p. 257.) Parke, Davis & Co., Detroit. (Jour. A. M. A., May 31, 1930, p. 1761.)

COMPREX ELECTRO-CAUTERY AND DIAGNOSTIC LIGHT (Comprex Oscillator Corporation, New York). A device for cauterization by means of electrodes which are electrically heated to the desired temperature. The device consists essentially of a transformer, designed to operate on either a 110 or 220 volt, 60 cycle alternating current circuit. The transformer is also tapped at such point as will give the desired voltage for the operation of a diagnostic light.

"STOPPOLLEN" AIR FILTER (Davics Air Filter Co., New York). A simplified portable filter which delivers dust and pollen-free air. The apparatus is described as consisting of a cabinet rectangular in shape, which contains the filter screen, a pressure fan and an electric motor, and is so constructed as to fit into any sized window. The cost of operating the device continuously for twenty-four hours is about ten cents. Tests were conducted which demonstrated that the Stoppollen air filter was efficient as a means of keeping a room free from dust and pollens. (Jour. A. M. A., May 31, 1930, p. 1760.)

### PROPAGANDA FOR REFORM

Pneumococcus Vaccines Omitted from N. N. R.—The Council on Pharmacy and Chemistry reports that increasing experience has failed to demonstrate the value of pneumococcus vaccine in the treatment of pneumonia, and the prophylactic value of the vaccine has not been conclusively proved. The Council came to the conclusion that the experience with this vaccine has not afforded acceptable evidence for its therapeutic usefulness and voted to omit it, with the accepted brands, from New and Nonofficial Remedies. In accordance with this action the Council announces the omission of Pneumococcus Vaccine Immunizing (Gilliland Laboratories, Inc.); Pneumococcus Vaccine (Lederle Antitoxin Laboratories); Pneumococcus Vaccine, Prophylactic (Eli Lilly & Co.); Pneumococcus Antigen—Lilly; Pneumococcus Vaccine (National Drug Company); Pneumococcus Vaccine (Four Types) (Parke, Davis & Co.); Pneumococcus Immunogen (Parke, Davis & Co.); Pneumococcus Vaccine (E. R. Squibb & Sons). (Jour. A. M. A., March 8, 1930, p. 716.)

MODILAC NOT ACCEPTABLE FOR N. N. R.—The Council on Pharmacy and Chemistry reports that Modilac is the proprietary name under which the Wm. S. Merrell Co. markets a compressed tablet containing milk, sugar and some salts, recommended for the "humanizing" of cow's milk to render it suitable for infant feeding. In 1925, the Council held Modilac not to be within the scope of New and Nonofficial Remedies because no medicinal claims were made for it, and included the product in the list of exempted articles. From an examination of the present advertising it appears that medicinal claims are now being made for the product, thus bringing it within the scope of New and Nonofficial Remedies. These claims were found to be unac-

ceptable and therefore the Council voted that the exemption of Modilac be rescinded and that it be considered unacceptable for New and Nonofficial Remedies because it is an unscientific mixture of official articles marketed under a nondescriptive proprietary name and with unwarranted therapeutic claims. (Jour. A. M. A., March 8, 1930, p. 716.)

### FOODS

The following products have been accepted by the Committee on Foods of the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in Accepted Foods:

NOURON (Nouron Products Corporation, New York). The ingredients used in the manufacture are soy beans, whole wheat flour and egg yolk. It is claimed to be a nutritious, digestible and palatable food prepared especially for assisting in the gradual change from a liquid to a solid diet, as for weaning babies and for convalescents.

MERRELL-SOULE WHOLE LACTIC ACID MILK POWDER (Merrell-Soule Co., Inc., New York). It is made from fresh whole milk. It contains fat, 28 per cent; protein, 26.5 per cent; lactose, 32.5 per cent; mineral matter, 6 per cent; total acidity, 5 per cent; free lactic acid, 4.25 per cent; moisture, 2.25 per cent. It is prepared from pure whole milk inoculated with a culture of *Streptococcus lactis*. This product is claimed to have the value of freshly prepared lactic acid milk.

JELL-O (The Jell-O Co., Inc., Le Roy, N. Y., General Food Corporation, Successor). A mixture of pure gelatin, cane sugar, pure fruit flavor, fruit acid from grapes and vegetable color.

CARNATION MILK (Carnation Milk Products Company). Cow's milk reduced to consistency of cream by evaporating in vacuum and then sterilizing. It contains the vitamins that any cooked milk is depended on to supply.

NEW OATA (Ralston Purina Co., St. Louis). It contains rolled oats and precooked rolled wheat. It is claimed to provide iron, phosphorus and the constituents of these grains in a form permitting rapid cooking.

PURINA WHOLE WHEAT FLOUR (Ralston Purina Co., St. Louis). It is composed of whole wheat. It is claimed that the product is rich in iron, phosphorus and other minerals.

CHECKER-CORN FLAKES (Ralston Purina Co., St. Louis). It is claimed to provide flavor and variety appealing to the appetite.

RALSTON WHEAT FLAKES (Ralston Purina Co., St. Louis). It is composed of whole wheat, claimed to provide nourishing food in appetizing form.

RALSTON (The Whole Wheat Cereal) (Ralston Purina Co., St. Louis). It is choice hard winter wheat, containing the wheat embryo, with its vitamins. It is claimed that the whole wheat berry supplies the elements for healthy growth. (Jour. A. M. A., June 14, 1930, p. 1919.)

### NEW AND NONOFFICIAL REMEDIES

The following products have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in New and Nonofficial Remedies:

ALPHANAPHTHOL.—The actions of alphanaphthol resemble those of betanaphthol. The literature is rather contradictory and unsatisfactory as to the relative toxicity, but it is probably of a similar order. Alphanaphthol is employed locally as an antiseptic and germicide; it is not generally used internally.

ALPHA NAPHC.—Compound Solution of Alphanaphthol.—Alpha Naphco contains alphanaphthol 10 Gm., glycerin, 32 Gm., soft soap, 23.8 Gm., water to

make 100 Gm. When tested against *B. typhosus* by the U. S. Hygienic Laboratory method, alphanaphco has a phenol coefficient of 1.46. Carel Laboratories, Redondo, Calif.

**PYRIDIUM.**—Phenylazo-2-6-diamino-pyridine monohydrochloride.—The monohydrochloride of an azo dye of the pyridine series, phenylazo diamino-pyridine. Pyridium has marked penetrating power and is non-toxic and non-irritant in therapeutic dosage. It is rapidly eliminated through the urinary tract. It is bactericidal in aqueous solution against staphylococcus, streptococcus, gonococcus, *B. coli*, and even *B. diphtheriae*. It is proposed for use in gonorrheal infections, urinary diseases, and in colon bacillus and mixed infections. The drug is supplied in the form of Aqueous Solution of Pyridium, 1 per cent; Pyridium Ointment, 10 per cent; and Pyridium Tablets, 0.1 Gm. Merck & Co., Inc., New York.

**POLLEN ANTIGENS-NATIONAL.**—Liquids obtained by extracting the dried pollen of plants with a 0.5 per cent sodium chloride solution containing sodium bicarbonate and phenol. For a statement of actions and uses, see Allergic Protein Preparations, New and Nonofficial Remedies, 1930, p. 23. Pollen Antigens-National are marketed in packages of one 5 c.c. vial containing respectively 50, 100 and 250 units per c.c. The following products have been accepted: Ragweed Pollen Antigen-National and Timothy Pollen Antigen-National. National Drug Co., Philadelphia. (Jour. A. M. A. July 5, 1930, p. 35.)

**MEAD'S 5 D COD LIVER OIL WITH VIOSTEROL.**—A brand of cod liver oil with viosterol 5 D. (N. N. R.) For a discussion of the actions and uses of cod liver oil with viosterol 5 D, see New and Nonofficial Remedies, 1930, p. 257. Mead Johnson & Co., Evansville, Ind.

**SIOMINE.**—Hexamethylenetetramine tetraiodide. Siomine contains 78.5 per cent of iodine. Siomine is decomposed in the intestine with formation of hexamethylenetetramine and iodide, the rate of absorption and excretion being essentially the same as that of inorganic iodides. It therefore produces the effects of ordinary iodides from which it differs only in that it can be administered in solid form. No therapeutic claims are made for the hexamethylenetetramine component of siomine, this being present only to render the substance insoluble. The dosage is the same as that of potassium iodide. Siomine is supplied in the form of capsules containing respectively  $\frac{1}{2}$  grain, 1 grain, 2 grains, and 5 grains. Pitmanmoore Co., Indianapolis.

**EPHEDRINE NASAL JELLY.**—Maltbie.—It is composed of ephedrine sulphate—N. N. R. 1 per cent, menthol 0.25 per cent and sodium benzoate 0.5 per cent in a glycerite of tragacanth base. For a discussion of the actions and uses of ephedrine sulphate, see New and Nonofficial Remedies, 1930, p. 167. Maltbie Chemical Co., Newark, N. J.

**EPHEDRINE HYDROCHLORIDE.**—P. D. & Co.—A brand of ephedrine hydrochloride—N. N. R. For a discussion of the actions and uses of ephedrine hydrochloride see New and Nonofficial Remedies, 1930, p. 167. Ephedrine hydrochloride—P. D. & Co. is supplied in the form of capsules containing respectively  $\frac{1}{8}$  grain and  $\frac{3}{4}$  grain. Parke, Davis & Co., Detroit.

**ELIXIR OF PYRAMIDON.**—Each 4 c.c. (1 fluidrachm) contains pyramidon (New and Nonofficial Remedies, 1930, p. 314) 0.162 Gm. ( $2\frac{1}{2}$  grains) in a menstruum containing alcohol, 20 per cent. H. A. Metz Laboratories, Inc., New York.

**PYRAMIDON TABLETS**  $1\frac{1}{2}$  grains.—Each tablet contains pyramidon (New and Nonofficial Remedies 1930, p. 314)  $1\frac{1}{2}$  grains. H. A. Metz Laboratories, Inc., New York.

**THIO-BISMOL.**—Sodium bismuth thioglycollate. A salt formed by the interaction of sodium thioglycollate and bismuth hydroxide containing approximately 38 per cent of bismuth. Thio-bismol is proposed as a means of obtaining the systemic effects of bismuth in the treatment of syphilis (Bismuth Compounds, New and Nonofficial Remedies, 1930, p. 94); it is a water soluble compound, readily absorbable, and produces relatively little local injury. The product is supplied in the form of ampules containing 0.2 gm. of thio-bismol. Parke, Davis & Co., Detroit. (Jour. A. M. A. July 19, 1930, p. 200.)

## BOOK REVIEWS

**DISEASES OF THE EYE.** By Sir John Herbert Parsons, C.B.E., D.Sc., F.R.C.S., F.R.S., Ophthalmic Surgeon, University College Hospital, etc. Fourth edition. With 21 plates and 326 text figures. New York: The Macmillan Company. 1923. Price \$5.50.

Parson's popular text is used extensively in the United Kingdom as a manual for medical students. It contains over six hundred pages and is well illustrated. The author has the happy faculty of covering the subject of ophthalmology thoroughly and in a most interesting manner. The book is not too bulky and can be recommended to students and general practitioners as well as ophthalmologists.

J. W. McK.

**MAMMALIAN PHYSIOLOGY.** A Course of Practical Exercises. A new edition. By E. G. T. Liddell, D.M., Fellow of Trinity College, Oxford, and Sir Charles Sherrington, O.M., M.D., D.Sc. (Cantab.), F.R.S. Waynflete Professor of Physiology in the University of Oxford. Oxford University Press, American Branch, 35 West 32nd Street, New York City. 1929. Price \$5.50.

Laboratory guides, either printed or in mimeographic form, have been issued for almost every prominent laboratory in America, these guides being adapted to the equipment and to the pedagogy of presentation of the subject current in each laboratory. While the idea of laboratory guides for specific experiments and observations date back pretty definitely to William Sterling's practical exercises in histology and physiology, England has not until recently pushed the development of such aids to experimental instruction. It is refreshing to find so conservative a laboratory as Oxford now turning out one of the strongest and most comprehensive laboratory guides for physiological experimentation that has thus far appeared. This new edition is rich in exercises dealing with mammalian material which bespeaks a loosening of the abnormal restraints to experimentation so long a handicap to English investigators.

The present edition comprises 20 exercises of 100 detailed observations. The fields of the circulation, the general nervous system, the coordinating controls of the autonomic system and of physiological hormones are stressed. A number of new and very detailed illustrations of physiological anatomy are presented with care together with striking illustrations of experimental results. There are fifty illustrations, many of which are new in their physiological import. This is particularly true for exercises covering nerve physiology for which Sir Charles Sherrington has been so long the recognized exponent.

The press work and illustrations of this edition are excellent.

C. W. G.



A TEXTBOOK OF PSYCHIATRY FOR STUDENTS AND PRACTITIONERS. By D. K. Henderson, M.D. (Edin.), F.R.F.P.S. (Glas.), Physician-Superintendent, The Glasgow Royal Mental Hospital, etc., and R. D. Gillespie, M.D. (Glas.), M.R.C.P., D.P.M. (Lond.) Physician for Psychological Medicine, Guy's Hospital, London, etc. Second edition. Oxford University Press, American Branch, 35 West 32nd Street, New York. 1930. Price \$5.50.

The success of the first edition of this excellent work is recognized by the issuance of a second, necessitated by the exhaustion of the first edition printed in 1927; and by the further fact that the book has been widely read and reviewed and abundant opportunity for criticism afforded, yet the authors feel impelled to make very few changes and these only to record a few advances.

Both authors have enjoyed an extensive experience in their chosen field in their own country and in the United States, and both occupy important positions in London and Glasgow.

The book is carefully and clearly written and expresses the consensus of the best psychiatric thought of the day. It is useful alike for students and for men working actively in any part of the psychiatric field. It can be heartily commended.  
M. A. B.

SURGERY OF THE LUNG AND PLEURA. By H. Morriston Davies, M.A., M.D., M.Ch. (Cantab.) F.R.C.S. (England). Medical Superintendent, Vale of Clwyd Sanatorium, etc. Oxford University Press, American Branch, 35 West 32nd Street, New York. 1930. Price \$8.00.

This monograph of 356 pages represents the views and interpretations of the author concerning thoracic surgery. One familiar with the literature of chest surgery of the past decade can readily see how well Dr. Davis has analyzed and epitomized it.

While quite impossible in a small book to cover the subject fully, sufficient description is here given of the various phases of thoracic surgery to give the reader an idea of the many advances in this subject. Operative technic is only sketchily discussed but the medical side of the subject is very well handled. The roentgen ray plates are well reproduced on excellent paper.

This monograph is recommended for students and for busy physicians and surgeons who would like to know the newer methods being developed in the newest child of surgery, "chest surgery."

J. J. S.

CLINICAL FEATURES OF HEART DISEASE. An Interpretation of the Mechanics of Diagnosis for Practitioners. By LeRoy Crummer, M.D., Emeritus Professor of Medicine, University of Nebraska. Introduction by Emanuel Libman, M.D., Professor of Clinical Medicine, Columbia University. Second edition, revised and enlarged. New York: Paul B. Hoeber, Inc. 1930. Price \$4.00.

The object of this book is to emphasize the importance of studying the clinical manifestations of heart disease. The author states in the preface that his book is the result of experience gained as instructor in a school of military medicine, but it seems to the reviewer that it is based, partly at least, on his teaching in Vienna a number of years ago. He devotes only a few pages to a discussion of the arrhythmias. He says focal infection as a causative factor in heart disease is "not proven." His chapters on inspection and auscultation are ex-

ceptionally good, but the one on treatment is disappointing. He advises digitalis in fibrillation only when compensation fails—a surprising statement. On the whole the work contains many practical points for both teacher and student.  
P. T. B.

TUBERCULOSIS AMONG CHILDREN. By J. Arthur Myers, Ph.D., M.D., F.A.C.P., Chief of Medical Staff, Lymanhurst School for Tuberculous Children, etc. With Chapters by C. A. Stewart, M.D., Ph.D., Assistant Professor of Pediatrics, University of Minnesota; Paul W. Giessler, M.D., Assistant Professor of Orthopedic Surgery, University of Minnesota. An Introduction by Allen K. Krause, M. D., The Desert Sanitarium and Institute of Research, etc. 1930. Charles C. Thomas, 220 East Monroe Street, Springfield, Illinois. Price \$3.50.

This excellent volume is the result of the observations and studies made on children at the Lymanhurst School for children at Minneapolis. According to the author this book is an attempt to bring up-to-date in compact form for the busy practitioner, our knowledge of diagnosis, treatment, prognosis and prevention of tuberculosis among children. In this attempt Dr. Myers has succeeded and deserves congratulations.

The book is divided into three parts: Part 1. Tuberculosis in infancy (birth to two years). Part 2. Tuberculosis in childhood (2 to 12). Part 3. Tuberculosis in the teen ages (12-).

Tuberculous meningitis, and chronic nontuberculous basal pulmonary diseases in childhood are ably discussed by Dr. C. A. Stewart. There is also a chapter with excellent illustrations on tuberculosis of the bones and joints by Paul W. Giessler.

The author believes with Krause that allergy and immunity are closely related, a theory recently questioned by Rich and McCordock. Dr. Myers is a great believer in the use of tuberculin as a diagnostic agent, and says the best method of approaching the tuberculosis problem in a community is through applying tuberculin tests (intracutaneously) to all children.

This book is a timely and excellent exposition of the subject and is recommended to phthisiologists, pediatricians and physicians in general.

A valuable part of the volume is the summary at the end of each chapter. The book is well planned, clearly written, and well illustrated.  
H. I. S.

#### SCHOOL DEVELOPS PLAN TO PREVENT EPIDEMICS

How one school controls the spread of contagious disease is related by Marie McElwee in the school department of *Hygeia*.

At the opening of school a "disease slip," on which are listed the common contagious diseases, is sent to all parents. They are asked to check the diseases their children have had or against which they have been immunized. When the slips are checked and returned they are grouped according to rooms. Then when a contagious disease occurs in school a list of the children susceptible to that disease is sent to each teacher so that she may observe those children closely.

If it is known that a child has been exposed to a contagious disease, he is sent home with a request that the mother observe him carefully during the incubation period of the disease. A notice sent at this time describes the symptoms of the disease, a feature that parents appreciate.

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### SYMPOSIUM ON CHEST DISEASES IN CHILDHOOD

#### ACUTE AND CHRONIC BRONCHITIS IN INFANCY AND CHILDHOOD\*

CALDWELL B. SUMMERS, M.D.

KANSAS CITY, MO.

It is perhaps only natural that a disease as common as bronchitis should tempt us to give it only routine attention. But when we remember that bronchitis is the most frequent disease of infancy and childhood and the forerunner of the most serious condition at those ages, namely, bronchopneumonia, we should consider it of paramount importance in pediatric practice. When we investigate the mortality statistics we find that deaths from respiratory diseases in infancy and childhood stand in second place. Just why very little has been written concerning it I do not know, but such is the case. It will be impossible to discuss bronchitis in all its various forms in this short paper and I am quite certain a textbook description would not interest you so I shall only try to discuss some of the interesting features.

It was Sydenham who first gave us a modern clinical description of its course, but it was Badham, another English physician, who first used the term "bronchitis" in 1814. Several wrote of this condition after Badham but much confusion existed until Laennec classified bronchitis in its various forms. There was no further progress until bacteriology shed its light on the causation of this and other diseases. Ewart, who has written so extensively concerning bronchitis, concedes to this very common disease an importance not usually accorded it by clinicians.

Bronchitis is an inflammatory disease of the mucous membranes and glands of the bronchi,

the associated involving organism being staphylococcus, streptococcus, pneumococcus, influenza bacillus, etc., either alone or as a mixed infection. There has been much discussion as to whether the infection is transmitted entirely by contact or whether the organisms are harbored in the upper respiratory tract and a lowered resistance of the mucous membranes permits the infection.

I feel that contact infection is the main factor. We do know, however, that the severity of the disease depends upon the type of organism and its virulence, the individual's resistance, and the structures involved. There are many factors which favor infection; the most important are enlarged tonsils, adenoids, chilling of the body surface, mode of living, and the seasons of the year. The defensive mechanism of the bronchi is unusually weak in infancy, therefore infants are subject to bronchitis, and the severer cases are those occurring under three years of age. Knowing that bronchitis is generally the beginning stage of our more serious respiratory diseases we should weigh in our minds the seriousness of all cases of bronchitis and not consider it lightly.

Bronchitis may be primary but generally it is secondary to an infection in the upper respiratory tract. In infancy this is the usual focus while in childhood, from the beginning of school age, it is secondary to the contagious diseases. Bronchitis is an invariable accompaniment of measles, whooping cough and influenza as well as other specific diseases. It is not the disease that causes a fatal outcome but the complicating bronchopneumonia which is always preceded by a bronchitis. Consequently, if we keep this in mind and treat the bronchitis energetically we may avoid the development of the more serious bronchopneumonia. The same rule applies to upper respiratory infections in infancy. If we treat tonsillitis, pharyngitis, otitis media and rhinitis vigorously, as well as inflammatory conditions of the larynx, we tend to prevent extension of the infection into the bronchi.

\* Read in the Symposium on Chest Diseases in Childhood at the 73rd Annual Meeting of the Missouri State Medical Association, Hannibal, May 12-15, 1930.



The generally used term, capillary bronchitis, is misleading because it is not alone an involvement of the finer bronchioles but also invades portions of the alveolar structure. Such cases are true bronchopneumonias, as postmortem examinations have shown. Whenever there is involvement of the finer tubes there is also involvement of the parenchyma of the lung and such cases should be classed as alveolar pneumonias and not bronchitis. It is true that the dividing line clinically between bronchitis and bronchopneumonia is a vague one, the diagnosis being chiefly a matter of personal opinion, for many cases that are undoubtedly pneumonia will not give physical signs of consolidation. We are forced therefore in many instances to make our differentiation according to the severity of the symptoms.

One of the common forms of bronchitis which I have seen in my practice among infants and small children is accompanied with asthmatic symptoms. This type is referred to as asthmatic bronchitis. These cases run the usual course of bronchitis but have asthmatic manifestations along with the other symptoms. There is a rise in temperature, difficulty in breathing, and expiration is prolonged. Wheezing respirations may or may not be present but many dry musical rales are heard throughout the chest. The asthmatic manifestations may last only a short time or may persist throughout the course of the bronchitis. This form of bronchitis is purely a childhood type and does not portend asthma in later life. Seldom have these cases shown a positive test with the proteins.

In regard to the diagnosis of bronchitis, many cases are treated for a bronchial involvement that have some other condition producing the cough. I believe it is safe to say that approximately 50 per cent of infants and small children with a cough have no inflammation whatever in the bronchi, but are coughing as a result of reflex irritation of the throat from enlarged tonsils and adenoids, posterior nasal infection, pharyngitis, otitis or rhinitis. A persistent cough frequently occurs from an enlarged thymus, enlarged bronchial glands and occasionally even from an elongated uvula. Therefore, if we administer cough medicine for these conditions we are perhaps doing more harm than good. A careful examination will discover the true cause of the trouble. To the layman a cough in an infant signifies an impending pneumonia and immediately the therapy is directed toward that end. It might be well at this point to mention Dr. Northrup's famous dictum on "How to Kill a Baby With Pneumonia."

Crib in far corner of room with canopy over it. Steam kettle; gas stove (leaky tubing), room at 80 degrees F., many gas jets burning. Friends in the room, also pug dog. Chest enveloped in waistcoat poultice, thick, hot and tight. Blanket the windows, shut the doors. If these do not do it give coal tar antipyretics and wait.

This may seem frank exaggeration to you but I have seen many an infant with nothing other than an otitis media or pharyngitis being treated in almost this same manner by parents or grandparents, and occasionally even a doctor will treat a bronchitis case in a similar manner.

As to the proper treatment of bronchitis, I wish first to state that the majority of cases are too zealously treated both in the methods used and in the drugs administered. The digestion should never be upset by drugs, as is too often done. In the choice of drugs I certainly do condemn the careless use of narcotics for infants and small children, except Dover's powder in small doses. The cough is nature's protective mechanism and should seldom be interfered with unless it is of a severe nature. As to treatment, rest in bed is of paramount importance. Next in line would be fresh air, preferably moist air in a warm room. This is accomplished by means of steam inhalations. If properly administered nothing accomplishes more in the early stage of a bronchitis. It relieves the cough and reduces congestion of the bronchial mucous membranes. As for drugs, I use ammonium chloride, iodized lime and terpin hydrate given in small doses, but these are thought by many to be of very little benefit. In asthmatic bronchitis ephedrine has given me excellent results.

With regard to chronic bronchitis let me state that it is uncommon in infancy and childhood. However, any chronic cough should induce the physician to write a very careful history of the case and make a thorough examination of the patient, including an X-ray of the chest and sinuses. The important conditions which must be eliminated are tuberculosis, bronchiectasis, mediastinal lymph adenitis, foreign body in the bronchus, asthma (allergic states) and chronic sinus infection.

In conclusion, I wish to emphasize the importance of bronchitis as a disease in childhood, especially in regard to its serious nature in children under three years of age. The importance of a correct early diagnosis and proper treatment must constantly be borne in mind. May I repeat that in my opinion too many cases are overdosed with drugs and the importance of hygienic care is overlooked.

## CHRONIC EMPHYEMA IN CHILDREN\*

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KANSAS CITY, MO.

It is the object of this paper to discuss the five cardinal points in the management of those cases of chronic empyema secondary to pneumonia that do not yield to treatment. These factors, enumerated in the order of their importance, are: drainage, nutrition, rest, sterilization of the cavity, and exercise.

### HISTORY

The patient is generally admitted with a history of having had pneumonia followed by empyema, and a thoracotomy that has been reopened several times over a period of several months to a few years. The general state of nutrition is fair, since the acute toxemia is over. The metabolism is more nearly normal and he has settled himself into a chronic state of malnutrition. There exists a secondary anemia of mild degree, underweight, compensatory curvature of the spine and flattening of the chest wall on the affected side, added to indifference to further procedure.

### PHYSICAL EXAMINATION

The preliminary examination of the patient should include the weight, laboratory findings, and especially the blood picture to determine the secondary anemia, and a smear from the draining thoracotomy wound. This latter is important because one of my cases, which showed the lungs negative for tuberculosis, had acid-fast bacilli in every smear. A preliminary roentgenogram will determine the presence of foreign bodies, such as rubber tubing, will estimate the size of the cavity and the pleural thickness, as well as give a general idea of the pathological condition of the heart and lungs.

The percussion sound over thickened pleura is a dull, flat sound that is difficult to differentiate from the sound obtained over fluid. This is especially hard if there is no draining thoracotomy wound and the cavity is emptying through a pleurobronchial fistula. Breath sounds over a thickened pleura are diminished or absent and in this respect resemble fluid. The thickened pleura over a cavity also destroys the "cracked-pot" sound and the tinkling is absent. These points in auscultation and percussion are mentioned because good clinicians have taught me that a differentiation between fluid and thickened pleura is not at all easy at the bedside.

The study of the cavity is best made fluoro-

scopically with the patient in the vertical position. The chest is rotated so that the position of the cavity may be studied in several planes. The cavity may then be filled with lipiodol or any other opaque media (the number of cubic centimeters required to fill a cavity is noted), and the position of the cavity and the dependableness of the existing thoracotomy wound is observed. The rigidity of the visceral pleura is estimated by the patient's ability to empty the cavity by respiratory effort. The volume of the cavity is routinely measured during an irrigation by filling it with fluid, with the patient lying on the side opposite the thoracotomy wound and then rotated back to empty it.

### DRAINAGE

No one treatment of empyema will supplant dependent drainage. If the thoracotomy wound that is present on admission is in a dependent position, it is simply enlarged, if necessary, to reinsert drainage. Two quarter-inch rubber tubes and a catheter are routinely inserted. The tubes should be just long enough to flush with the skin and parietal pleura. The catheter is only for irrigation and it is best that it should not project too far into the chest. There is probably not a great deal to be accomplished by the Carrel method of attempting to place the irrigating tubes within the chest. Safety pins are inserted in the drainage tubes and retained by strips of adhesive running through the pins and three-fourths way around the chest, one above and one below the wound. Drainage tubes are never sutured into the chest wall for the suture tracts become infected, slough out, and make a ragged slow healing wound. If the admission thoracotomy wound is not in a dependent position, a second intercostal drainage must be properly placed. It has rarely been necessary to resect ribs in our cases of acute empyema, seldom in the chronic cases, while in none of our chronic cases has it been necessary to do a thoracoplasty. Multiple rib resections were done in one case, due to an osteomyelitis of several ribs resulting from an empyema necessitatis that had perforated the anterior and lateral chest wall in several places. Rib resections are always done aperiosteally especially in children where loss of osseous support means deformity.

### NUTRITION

All authors will agree that nutrition is next in importance to dependent drainage. The patient is weighed on admission and from two to three times a week during his entire hospitalization and for a period of several months after leaving the hospital. One can neither gain nor lose weight without a pair of scales. A high

\* Read in the Symposium on Chest Diseases in Childhood at the 73rd Annual Meeting of the Missouri State Medical Association, Hannibal, May 12-15, 1930.



caloric diet is ordered, with nourishment between meals. The diet is specifically written and it frequently is necessary to rewrite it during a long period of hospitalization. It is important to have the weight and the cavity volume recorded on the temperature chart because the temperature, gain in weight, and diminution in volume of the cavity are the cardinal points in the patient's progress. It is quite beneficial to use sunlight or violet ray systematically, for they are considered indispensable in the successful treatment of empyema. Blood transfusions should be used frequently. The giving of whole blood in several doses at short intervals will aid the secondary anemia, and often will defeat the anorexia in a serious case sufficiently to start the patient gaining weight.

#### REST

Definite written orders should be followed as to the amount of rest the patient should have. The number of hours of rest in bed should be determined by the gain in weight and the presence or absence of temperature. In order to assist in changing the patient's weight level complete rest in bed may be necessary. In all cases the night hours of rest are lengthened and an afternoon rest insisted upon. The afternoon rest must be taken during the probation period, when the patient first leaves the hospital and while he is returning for observation. The observation should cover a period of three months, and one should weigh, examine the chest and take the temperature of these patients every two or three weeks during this time.

In one case, a young adult, male, with a cavity measuring 500 c.c. which refused to close with time, drainage, and sterilization, made a prompt closure when he gained fifteen pounds in weight. He could only accomplish this gain in weight by absolute rest in bed.

Although there may be residual infection and a very small cavity when a thoracotomy wound closes, if the convalescent observation is properly carried out recurrent empyema will be the exception and not the rule.

#### STERILIZATION

Sterilization not only of a chest cavity but of any infected wound, will facilitate its closure and tend to convert infected, ragged-looking wounds into primary healing. It is my practice to irrigate or moist compress all infected wounds with some chlorine solution. I feel that the probability of postoperative hernia is greatly lessened by irrigating abdominal wounds as the drainage is removed. As an irrigating fluid Dakin's solution was first used and would

still continue in use were it not for the difficulty of getting it properly prepared. Dakin's solution is thought to be superior to other solutions because of its ability to digest necrotic material. For a time Ashes' solution, a commercial chlorine preparation which has now been taken off the market, was used. At the present time I am using hychlorite in a diluted proportion of one to ten. Hychlorite solution has a good chlorine content and is a very satisfactory germicide.

Drainage tubes are removed according to the rapidity of the obliteration and sterilization of the cavity. As the cavity becomes smaller, the tubes are removed until finally the catheter is inserted each time the wound is irrigated. At this stage the frequency of irrigations is reduced to four times during the day and once at midnight.

The anesthetic employed is novocaine with a small amount of adrenalin. However if, due to a child's nervousness, we do not get cooperation, gas-oxygen or ethylene is employed. A cry from nervousness is just as much an indication for a general anesthetic as one from pain.

Secondary wound closures are infrequently done and occasionally repeated after a failure, but the routine procedure is healing by granulation.

It is routine to irrigate an empyema cavity every one to two hours during the day and every two to three hours during the night until closure is obtained. This is a tremendous task and needs a lot of nurse cooperation, but I am absolutely convinced of its importance. Irrigation may be continued for weeks or months, only being discontinued when the cavity is reduced to a small fistulous tract, and then a two per cent mercurochrome solution is used two to three times a day until closure is complete. Mercurochrome is valuable in fistulous tracts not only of the chest but elsewhere. It will sterilize, mark tracts, and is readily seen in the sputum when coughed through a pleuro-bronchial fistula. A recent case of ruptured retrocecal appendicitis that was operated upon elsewhere, had a tract leading from the region of the appendiceal abscess, over the liver, through the diaphragm and into a bronchus. By daily injections of two per cent mercurochrome through this fistula it readily closed.

Smears are made routinely from the thoracotomy wound or discharge and bacterial counts recorded. The clear, viscid, egg white appearance of the drainage is, however, sufficient to prove a reduction in pus cells as well as bacteria. It is definitely proven that a thickened pleura will thin out when the cavity is clean. The lung's ability to expand in these

old chronic cases depends entirely upon the regeneration of the visceral pleura. The change in inflammatory thickening of the visceral pleura is again proven in thoracoplasty where a flap is turned against the pleura. The wall at first is rigid but, after healing of the flap takes place, the pleura regenerates and this area vibrates with respiration.

During the process of closure, repeated vertical fluoroscopic examinations are made to determine the thinning of the pleura, the size of the cavity, and the position of the drainage tubes. I speak of drainage tubes because patients are frequently admitted with pieces of tube broken off or lost in the chest. Tubes are frequently too long and push into the pericardium or lung. Again, drainage is left in too long and a cavity closed except for the area occupied by the drainage tubes.

Pleurobronchial fistula, in my experience with children, has not been a serious complication or contention in the cure of empyema. In the presence of pleurobronchial fistula, the cavities are irrigated just the same as if no fistula were present. The initial irrigations are done by some competent individual to insure that the patient is properly introduced to the odor and irritation of the chlorine solution coming up into a bronchus. It is most unwise to irrigate an empyema cavity in the presence of a pleurobronchial fistula if it cannot be done without violent coughing. Violent coughing in the presence of a bronchial fistula has resulted in aspiration pneumonia and metastatic abscess. Just as soon as the cavity becomes more or less sterile the fistula usually closes; however, it may not close until there is a very small fistulous tract. When such is the case fistulae are closed by the injection of a two per cent mercurochrome as described above. Mercurochrome is coughed out without a great deal of distress.

Empyema necessitatis is a rather frequent complication of empyema. The perforation occurs first in a bronchus, second, through the anterior chest wall along the peristernal line where the chest wall is thinnest due to the lack of support from the external intercostal muscles. Perforation may occur at any point in these emaciated thin chest walls, but it has also penetrated into the esophagus, pericardium, mediastinum, and through the diaphragm into the stomach or intestines. In one case discussed by Osler, Fagge and Pye-Smith, the abscess ruptured the diaphragm external to the arcuate ligament, traveling down the quadratus lumborum muscle and pointed in the inguinal region as a psoas abscess. Empyema necessitatis is frequently complicated by osteomyelitis of the ribs, in which case it is necessary to

do one or more aperiosteal rib resections. This type of empyema is likewise treated with dependent drainage.

#### EXERCISE

The amount of exercise the patient takes should be controlled entirely by a consistent gain in weight and no temperature. When a loss of weight is registered or the patient has a rise of temperature, any active physical exercise should be limited to the army type of setting up or Camp's daily dozen, rather than competitive play. There should be a definite time, graduation and regularity to this exercise, and it should also be carefully supervised. My favorite system of exercise consists of blowing bottles, graduated deep inhalations, and the inner and outer windmills. In the latter, one swings the straight arms crossing them over the chest in the largest possible circle. The curvatures and deformed chest in these chronic cases respond rapidly when good progress is made in the five cardinal points that have been mentioned here in the cure of empyema.

It has not been necessary to do a thoracoplasty in any of my cases. This method of treatment, as a whole, has been described by many authors. The failure to effect a cure in many cases is due to a lack of appreciation of the tremendous amount of time, constant supervision, and hard work necessary for success.

1332 Professional Building.

### PULMONARY AND TRACHEOBRONCHIAL GLAND TUBERCULOSIS IN CHILDHOOD\*<sup>1</sup>

T. C. HEMPELMANN, M.D.

ST. LOUIS

It is a well known fact that practically all children, even those of tuberculous parents, are free of tuberculous infection at birth. Autopsies and tuberculin studies, however, have shown that by the time adult life is reached most of these individuals have become infected with the tubercle bacillus, and that in a large proportion of such cases infection has taken place during the period of childhood. Despite this fact the symptoms produced by such an invasion are in most instances so vague and indefinite as to make the time of its occurrence entirely unsuspected and unrecognized.

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The childhood type of tuberculosis is the result of a first infection with the tubercle bacillus and its characteristics are quite different from those seen in the tuberculosis of adult life. The usual sequence of events is as follows: In consequence of direct exposure to another individual suffering from the disease, the child inhales a certain number of tubercle bacilli some of which lodge in the lung and set up a "primary lesion" or focus of tuberculosis from which there is a rapid extension of the process along the lymphatics to the tracheobronchial glands. In most instances a gradual walling off of the primary focus takes place and ultimately this lesion undergoes calcification. In the meantime the infected lymph nodes at the root of the lung become enlarged to the point where their presence may often be recognized by clinical signs or the roentgenogram. Such "hilum tuberculosis" is typical of the early childhood type of infection and in most instances the disease never progresses beyond this stage, the lesions becoming healed or quiescent; and in consequence of the stimulation to the production of antibodies which results from such mild infection, the body forces are actually better able to resist subsequent invasions of the tubercle bacillus. Although in this section of the country infection through the respiratory tract is much commoner than any other kind, in certain instances the tubercle bacillus may enter the body through the gastro-intestinal canal, in which case the lymph nodes first affected will be in the mesenteric group. Infection by this route is usually the result of the ingestion of contaminated food, such as milk and butter, and is considerably more frequent in the British Isles and certain other localities than with us.

It must not be supposed, however, that the spread of the pathological process is always arrested after the establishment of a primary focus and extension to the regionary lymph nodes. In infancy, for example, quite the reverse is apt to occur, for the younger the child the less resistance he has to tuberculosis. In consequence, infants are apt to be overwhelmed by the tubercle bacillus and often show dissemination of the infection to a number of organs. It is at this age, too, that miliary tuberculosis and tuberculous meningitis are most common, and it is not surprising to find that the death rate is higher than at any other period of life. For example, in a study of 130 infants under two years of age infected with tuberculosis we found a death rate of 78.7 per cent for those in the first year and 57.4 per cent in the second year of life. Even in older children, however, instead of a limi-

tation of the infection to the primary focus or hilum, there may be a further dissemination to the lung parenchyma or other organs producing a wide variety of clinical pictures.

With reference to symptoms it may be said at once that these will depend on the age of the child and the size, location and character of the lesions. Careful questioning will usually show the presence of cough, and often reveal a possible source of infection. Frequently, and especially in the relatively mild hilum tuberculosis, there is a history of previous attacks of unexplained fever or of repeated coughs and colds during the winter months. As a rule, fever is present and is apt to be higher in the afternoon than in the morning, but frequently not at all in keeping with the severity and extensiveness of the pulmonary involvement. Although most children with tuberculosis will show some degree of undernourishment, this is rarely a striking early symptom and many children develop a fatal meningitis while still in an excellent state of nutrition. As the disease progresses, however, there occurs loss of weight, asthenia and more or less anemia. Night sweats, which form such a prominent symptom of the disease in adults, are usually entirely absent in children or, when present, more commonly due to rickets or other infections than tuberculosis. Hemoptysis, too, is rare in young children though occasionally observed in the older ones. Extensive pleurisy with effusion, uncommon at best, should always be regarded as tuberculous until shown to be due to some other infection.

Once the presence of a tuberculous infection is suspected, an accurate history should be obtained, a careful physical examination performed and tuberculin tests as well as roentgenograms made. As involvement of the tracheobronchial glands is an early occurrence especial attention should be directed to this region. In infants, the trachea and bronchi are so small that enlarged bronchial glands at times produce sufficient compression of these structures to cause a characteristic high-pitched, metallic cough and expiratory wheeze which may give a clew to the diagnosis. In older children, however, such evidence is lacking, but careful percussion will often reveal slight dullness to the right or left of the spine or sternum, and on auscultation over the spinous processes of the dorsal vertebrae, a positive d'Espine sign (transmission of the whispered voice with maintenance of the tracheal timbre to the level of the first or second dorsal spine) may be of aid.

When the pathologic process extends into

the lung parenchyma, one of the commonest clinical pictures seen in infants is that of a persistent bronchopneumonia, frequently associated with relatively low fever and little or no increase in the leukocyte count. However, in older children one is more apt to encounter a localized bronchitis, that is, a collection of moist rales heard always in the same place, especially near one of the nipples or over the upper part of the lower lobes posteriorly. And in this connection it must be emphasized that tuberculous involvement of the apices of the lungs is much less frequent in children than in adults and has no part in the picture of the childhood type of the disease. More extensive infiltrations in the lung will produce the usual changes in voice and breath sounds as well as impairment of resonance; and although cavities are found even in infants they are usually small and deeply situated so that they are quite likely to be overlooked during life. The symptoms of miliary tuberculosis are not at all characteristic and its presence is often unsuspected until revealed by the roentgen ray or autopsy.

As aids in the diagnosis, the tuberculin tests and the roentgen ray are invaluable. The von Pirquet reaction commends itself for routine work because of its simplicity, but it is important that the tuberculin used be a potent product, preferably tested out on known tuberculous individuals. If the test be negative, it should be repeated in eight days, or better, the intradermal test used, injecting 0.1 mg. of old tuberculin. The latter is more sensitive than the von Pirquet test; but it should be remembered that a positive reaction in either case indicates only the fact of a previous infection without regard to its possible activity or latency. Only during the period of infancy may a positive test be assumed to indicate activity of the lesion but a persistently negative reaction, followed perhaps by the subcutaneous injection of larger amounts, such as 0.5, 1 or even 5 mg., indicates the absence of any tuberculous infection, a fact which may often prove equally valuable. Moreover, it must be remembered that in general the percentage of positive reactions in America among children of the poorer classes is much lower than is the case with the often quoted figures obtained in Berlin and Vienna. For example, in St. Louis children between eight and ten years of age, 30 per cent of the children in the Washington University dispensary reacted positively, and at twelve to fourteen years of age about 40 per cent.

Following the tuberculin tests and a careful physical examination, confirmatory evidence may be obtained by means of the roentgen ray.

But, except in the rarest instances, no roentgenologist should be permitted to make a positive diagnosis of the presence or absence of clinical tuberculosis; since this method of examination yields only one piece and type of evidence its proper evaluation rests entirely with the clinician. And it must be emphasized that bone, joint, gland and ocular tuberculosis is always a secondary manifestation, usually following an infection in the respiratory tract. Therefore patients with lesions of this nature should also have plates taken of their chests. Conclusive proof of active tuberculosis may at times be obtained by finding the tubercle bacillus in the sputum. Children with hilum tuberculosis rarely have bacilli in their sputum but when the lung parenchyma is involved the organisms often appear in this manner. Expectoration, however, is rarely seen in children under five or six years of age, the sputum being coughed up and promptly swallowed. If, however, coughing is provoked by irritating the pharynx with a cotton swab, a plug of mucus may be seen to come into the throat where it is caught on the swab and smears from this may be examined for tubercle bacilli in the usual way. In certain instances guinea pig inoculation may also prove feasible.

As regards treatment, the usual regime includes rest in bed during the febrile period, an abundance of fresh air and sunshine, high calorie diet, cod liver oil and the avoidance of respiratory infections, especially measles and whooping cough, which lower the resistance to tuberculosis. In the prophylaxis, it is important to remove all children, especially infants, from the tuberculous environment; and this same principle holds true after infection has taken place, for the smaller the number of tubercle bacilli inhaled the better the chances of overcoming the infection. A word of warning should be given concerning the use of heliotherapy. This remedy, whether direct sunlight or some other form of ultraviolet ray, is often very beneficial in certain forms of surgical tuberculosis but may be positively harmful when there is an active process in the lungs. In the latter type of infection, if heliotherapy is used at all, it should be with the greatest caution for it is capable of causing hemoptysis and an exacerbation of the pulmonary symptoms which may have the gravest consequences.

Finally, it must be emphasized again that if we are to cure tuberculosis we must recognize the disease in its early stages, and in children the earliest recognizable lesions are usually those about the hilum of the lung. And even though somewhat similar hilum changes are occasionally produced by sinus disease, repeated attacks of bronchitis, etc., it is better to



err on the side of safety and treat such patients as potentially tuberculous until the true nature of the condition becomes apparent.

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#### DISCUSSION

DR. J. F. CHANDLER, Oregon: I would like to congratulate Dr. Summers on his paper. If I see a child with a running nose and coughing, playing on the floor, I say to the mother that the room is too hot and dry and she pays no attention. But I carry a hydrometer and when I use that they are interested to see what I do and they pay some attention. The same when I inspect a school. If I find the school room hot and dry I use the hydrometer and they ask what it is and you can drive home the point you want emphasized.

As to the treatment, common sense is always in order. The first thing I do when I go into a sick room is to see the patient and the surroundings, then I use treatment to meet conditions. Medicine amounts to little if you do not make the environment what it should be.

DR. HARRY M. GILKEY, Kansas City: I would like to ask Dr. Hempelmann what becomes of the tuberculin positive children. I notice Nobel reports on 50 children who had a positive von Pirquet, and out of the 50 only two were living ten years later. I thought that percentage was rather high and I am interested to find out what Dr. Hempelmann's percentage was and what the prognosis is now.

Dr. Montgomery mentioned more about the surgical treatment of empyema, and not so much about the time. Medically, children are usually aspirated first, and if the fluid is a transudate they are left alone. The empyemas from pneumonia are usually first aspirated and then rib resection or intercostal drainage done. I would be glad to have him mention something about the time of the operation.

DR. J. T. HORNBACK, Nevada: I understood one of the essayists to say that sunlight or ultraviolet ray are liable to produce hemorrhage of the lung. I do not see how that could happen.

DR. JAMES G. MONTGOMERY, in closing: Dr. Gilkey has brought out a point that interests us very much. Aspiration will most certainly cure a great number of empyemas. During the World War it was found that about thirteen per cent of these cases could be cured by persistent aspiration. Aspiration is done for diagnostic purposes and for the relief of mechanical embarrassment. It should be done under local anesthetic and with a negative pressure bottle, for there is too much danger of replacing fluid by air when aspirations are done by multiple syringes.

Dr. Gilkey continued by asking when an empyema should get well following a thoracotomy. The answer to this question is indeed a variable quantity. It deals with the patient's nutrition, the dependability of the drainage of the thoracotomy wound, and the operator's ability to sterilize the cavity, following which a secondary wound closure may or may not be done. The majority of cavities will obliterate and the wounds will heal in from six weeks to two months. If a case is not well in two months, one usually suspects something wrong in the technic of the wound care, or the physical condition of the patient.

It is also to be remembered that the period of convalescence, after the thoracotomy wound is healed, is just as important as the period of active treatment. This period of convalescence, as mentioned before, should be of at least three months' duration.

DR. T. C. HEMPELMANN, in closing: In answer to Dr. Gilkey regarding the fate of children with a

positive tuberculin test, the only ones I have personally followed for any length of time have been the infants. They are known to have less resistance to the tubercle bacillus and for that reason are unusually interesting since the old textbooks gave the mortality of infants infected within the first year as nearly 100 per cent. We followed these at least one year after the diagnosis of tuberculosis was made, and found that in those infected during the first year the mortality was 78 per cent. After the first year of life the mortality is considerably lower. In those infected in the second year, the mortality rate was 57 per cent. After that it drops perceptibly, and our feeling was that in most instances the young children who lived a year after diagnosis was made had an excellent chance to overcome the infection. Repeatedly, however, after several years, these children would come down with tuberculosis of the hip, tuberculosis of the spine, or some other lesion that showed we still had an active process going on. However, past the age of infancy, tuberculosis if it is recognized reasonably early, does not give a much worse prognosis than in adults, and in certain instances probably offers a better prognosis because children can be handled in a more satisfactory manner than adults.

Regarding the use of ultraviolet light and its possible dangers, particularly in causing pulmonary hemorrhage, that is exactly what I mean,—that the ultraviolet ray, indiscriminately and injudiciously used, exposing the chest of an individual with an active process, may produce hemoptysis and activation of the process. I am not the first one who has said that. Many better men have said it long ago. That is the impression among men who deal exclusively with tuberculosis. However, the chances are that it is not so much the violet ray as the dosage of the ultraviolet ray. By ultraviolet ray I mean not only that produced by the lamp, but also actual sunlight. If a child or adult with pulmonary infection is exposed to sunlight very carefully, first the feet, then the lower portion of the legs, then up to the knees, increasing five minutes a day, and the chest avoided in the exposure, there may be benefit from the ultraviolet ray. At times the chest also is exposed very cautiously. But we quite frequently hear the statement that ultraviolet therapy is absolutely contraindicated in active pulmonary tuberculosis and this is the reason. Of course there is much we do not understand about the ultraviolet ray. Possibly the occasional bad effects limit the application of a remedy that properly applied would be helpful.

## PRIMARY CARCINOMA OF THE FALLOPIAN TUBE

### REPORT OF A CASE

WITH REVIEW OF 43 CASES SINCE WECHSLER'S  
REVIEW IN 1926\*<sup>1</sup>

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The fortuitous discovery of a case of primary carcinoma of the fallopian tube led me to undertake a survey of the literature with the hope that by evaluating the cases reported I might

\* Read at the 73rd Annual Meeting of the Missouri State Medical Association, Hannibal, May 12-15, 1930.

1. From the Department of Surgery, St. Louis University School of Medicine.

be able to discover some constant early diagnostic symptoms. I found on the contrary, however, a surprising variety of symptoms mentioned in the series of cases studied, but no one constant finding.

Wechsler,<sup>27</sup> in 1926, collected and listed 196 cases of primary tubal cancer. Going on from that point, I have added 43 additional ones, bringing the total to 239. There is a marked increase in the number of cases reported in the last five years, which may be due to the current interest in the study of cancer as a whole, or may indicate that the present-day custom of routinely examining all surgical specimens microscopically is disclosing instances of this disease which formerly went unrecognized. Tubal carcinoma is undoubtedly rare, as indicated by the fact that there were only 5 cases found in 35,000 patients treated in the Johns Hopkins Hospital for various gynecological conditions, and only 3 cases in a series of 30,000 patients with gynecological conditions treated in the Bellevue Hospital of New York. However, this disease is probably not quite so uncommon as it was formerly considered, but due to the difficulty of diagnosis has doubtless gone undetected in many instances.

There seems to be no racial predisposition. Although the majority of cases reported have occurred in Germany there are sufficient reports from the other European countries and from America to make this observation of no particular significance.

The age incidence is greatest between 45 and 50 years. Sixty-three per cent of all tubal cancer occurs between 40 and 55 years. The maximum age incidence in my series agreed remarkably with that found by Wechsler, and in the two age tables there is only one rather notable exception. In the 25 to 30 age group, Wechsler found 1.7 per cent as against 9.7 per

Table 1. Age Incidence

Age	Wechsler	Present Series	Total
25-30	3	4	7
30-35	6	1	7
35-40	23	5	28
40-45	41	5	46
45-50	44	9	53
50-55	32	7	39
55-60	22	5	27
60-65	4	4	8
65-70	1	1	2
70-75	1	0	1
Total	177	41	218

cent of the 41 cases in my review in which the age is given. The youngest patient was 25 and the oldest one 73. Quite a few of the recent tubal cancers are in comparatively young women. Gittelson,<sup>13</sup> in this connection, makes the statement that cancerous diseases in general have increased in virulence since the war and that young women are especially often affected.

The number of children was reported in only

29 of the 43 recent cases; of these, 11 women had no children, 11 had one child, and 7 had more than one, giving the following percentages: Sterile, 38 per cent; one child, 38 per cent; more than one child, 24 per cent.

Seventy-six per cent of sterile and partially sterile women seems higher than one would normally expect to find. Wharton and Krock,<sup>28</sup> in reporting a series of 14 cases of tubal cancer, find that the child-bearing function in the majority of their patients was essentially normal. My patient had four healthy children and no miscarriages.

Sanger and Barth,<sup>22</sup> in 1895, advanced the theory that tubal carcinoma has for its etiology an antecedent salpingitis, and support this observation by the high percentage of sterility found in women with cancer of the tube and the large number of such women showing evidence of chronic tubal disease. Wechsler, Vest,<sup>26</sup> Liang,<sup>20</sup> and Peham<sup>21</sup> seem to feel that salpingitis when found is to be considered only as an accidental complication since salpingitis is so very common and cancer of the tube so rare. Callahan, Schlitz, and Hellwig<sup>6</sup> feel that the tubal inflammation is a consequence of the cancer rather than a precursor of it. Although my case showed some signs of inflammation at the time of the operation there was nothing to indicate that the salpingitis antedated the neoplasm. Whether due to the gonococcus or to some other micro-organism, salpingitis may, however, play an important role in the reduction of implantation metastases by sealing the abdominal ostium of the tube. On the other hand, this closure may result from the irritation attendant to the malignant metaplasia (Doran<sup>8</sup>). The condition of the fimbria is noted in only 20 of the 43 cases; 18 were closed and 2 were open. Of the latter, one, Bültemann's,<sup>5</sup> was a case in which the patient had omental and bilateral ovarian metastases at the time of operation. The other, a case reported by Klein,<sup>17</sup> was complicated by tuberculosis. The end-result is unknown as both were reported very shortly after the operation.

The symptoms are so varied in character that it is almost impossible to select any as being typical. Although not present until late in the course of the case here reported, pain seems to be the most constant symptom and was present in some degree in 56 per cent of the cases. Stanca,<sup>25</sup> among others, describes the pain as being sharp and colicky, paroxysmal in character and with remissions accompanied by the discharge of a serous or serosanguineous fluid. This type of pain would probably be present only in those cases simulating hydrops tubae profluens, and would be due to the stretching of the tubal walls by retained fluid with relief upon escape of this fluid through



the uterus. Pain usually occurs earlier in the course of tubal malignancy than in uterine cancer. Severe pain, however, is absent in many instances and there is only a dull pelvic discomfort with occasional exacerbations radiating to the epigastrium, sacrum and lower extremities.

When pain is a late manifestation vaginal discharge or bleeding may be the first symptom. Some type of discharge is present at some time in the majority of instances. Probably the most common is a watery secretion, more or less blood-tinged. Next in order of frequency is a yellowish leukorrheal discharge, often malodorous. Almost every known type of vaginal discharge was mentioned in at least one of the 196 cases. On the other hand, 17 of the recent 43 cases had no reported discharge of any sort.

Menstrual disorders are frequent with metrorrhagia heading the list. It is often post-climacteric and in many instances, after a negative curettage, is the symptom leading to an exploratory laparotomy. Constipation and dysuria are frequent. Backache is quite common and there is often some loss of weight with increase in girth. The triad of coexistent pain, yellow discharge, and hemorrhage, so often mentioned, was found in only 2 of these 43 cases.

Pelvic examination, as a rule, reveals nothing that is characteristic. A mass is usually felt on one side of the uterus or the other, sometimes on both. It varies in size and consistency and may be overshadowed by a complicating myoma of the uterus, a large ovarian cyst, or a hydrosalpinx. Late in the disease ascites is present together with glandular enlargement. The tumor mass may fill the entire lower part of the abdomen; it may be hard and sensitive to pressure, or definitely cystic, showing fluctuation.

Since neither subjective symptoms nor physical examinations produce a characteristic picture of onset, it is not to be wondered at that accurate preoperative diagnosis is so difficult. Only one author, Falk,<sup>11</sup> has claimed such a diagnosis and he made it by the use of a diagnostic puncture, which seems to me to be too dangerous a procedure to employ. In a woman beyond the menopause one would rather, under certain conditions, do an exploratory laparotomy after making a tentative diagnosis founded upon the presence of an adnexal mass, pelvic pain and a sanguineous discharge. In younger women even a tentative diagnosis would be more difficult and it is extremely doubtful if one could be made before the disease had progressed so far that it would be inoperable.

The consensus of opinion seems to be that early radical operation with removal of both

tubes, ovaries, and the uterus, together with a wide area marginal to the growth, offers the only hopeful prognosis. Radiotherapy as a substitute for surgery seems to have been unsuccessful in those few instances in which it has been used. In fact, Bültmann reported a case in which the patient apparently developed a tubal carcinoma during the course of roentgen ray treatments for an erroneously diagnosed cancer of the uterus. Postoperative radiotherapy has been used rather frequently during the last five years but its value is problematical. Unfortunately, the data regarding the radiated cases is incomplete.

Since most writers are in complete accord that tubal carcinoma is a highly malignant neoplasm, and since it is so frequently undetected even at operation, and diagnosed only during the histological examination of excised tissue, earlier recognition of the disease is essential if the mortality is to be reduced. One way of achieving this is to make a very careful gross inspection of tubes that appear at all suspicious at the time of operation. Failing detection at operation, in those cases where the first operation was too conservative in view of the laboratory findings, one should consider a second operation for the purpose of removing the remaining genital organs as well as the pelvic lymph nodes. There is also the question of whether or not it is wise to leave an apparently healthy ovary *in situ* when operating on a young woman with tubal carcinoma. It would seem not too dangerous a procedure, provided the tube had been sealed at its abdominal ostium. Where the fimbriated end is sealed early in the course of the disease, implantation is usually limited to the endometrium and the tumor may remain within the tube until late in its development when lymphatic transmission occurs, usually to the lumbar, inguinal, sacral, and hypogastric glands. Peritoneal and ovarian involvement seems to be definitely increased in those instances where the fimbriated extremities remain open.

Wechsler found 183 cases in which the seat of the tumor was given. Of these, 64 were in the right tube, 62 were in the left, and 57 were bilateral. Only 35 of the recent 43 cases give this information. Of these, 14 were left-sided, 12 were right-sided, and 9 were bilateral. This prevalence of bilateral involvement, together with the fact that early recurrences have been observed in the remaining tube when a unilateral salpingectomy has been done, would seem to indicate that both tubes should always be removed.

The involved tube is usually enlarged and distorted, being variously described as sausage, retort, club, or pear-shaped, and often resembling a hydrosalpinx. The tumor is found

Review of 43 Cases of Primary Carcinoma of the Fallopian Tube, Including the Author's Case (Case 20), Reported Since Wechsler's Review of 196 Cases in 1926, Making a Total of 239 Cases in the Literature

Case No.	Author	Age	Para	Symptoms	Physical Findings	Operation	Side	Fimbriated end	Microscopic Findings	Reported Post-operative results
1	Barrows (1)	31	1	Pain in abdomen and lumbar region; irregular periods; foul yellow discharge; loss of weight; fever	Hard adnexal mass on left	Colpotomy. Removal of part of right tube and all of left tube and ovary	Bilateral	Left sealed	Bilateral primary carcinoma of tubes; carcinoma of left ovary	Hopeless recurrence 9 months after colpotomy
2	Barrows (1)	42	0	Pain in lower right abdomen and on defecation or urination; dysmenorrhea; loss of 50 pounds in 3 years	Fundus of uterus enlarged	Bilateral salpingo-oophorectomy	Bilateral		Bilateral primary carcinoma of tube and right tubo-ovarian cyst	Death 6 months post-operative
3	Barrows (1)	29	1	Mild pain in lower left abdomen; 3 days atypical bleeding		Bilateral salpingo-oophorectomy			Primary papillary carcinoma	Patient instructed to return for radical operation
4	Beck (2)	52	1	Profuse bleeding for 3 days; increase in girth; diabetes mellitus	Abdominal cystic tumor; possible left-sided malignant ovarian tumor	Removal of both adnexae	Left	Left sealed	Partly papillary, partly medullary, primary carcinoma of tubes	
5	Bortini (3)	50	2	Profuse vaginal hemorrhage, constant but increasing in intensity every 15 days	Right adnexae size of a mandarin; fibroma of the uterus	Bilateral salpingo-oophorectomy and hysterectomy	Right	Right sealed	Papillo-alveolar carcinoma	Patient still living and no suspicious symptoms after 2 years
6	Bower and Clark (4)	25	2	Lower abdominal pain; dysuria; constipation; leukorrhea	Abdomen tender, distended, not rigid; cervix adenomatous; slight rectocele; tubes enlarged and tender; ovaries slightly enlarged	Removal of both tubes and appendix; later, radium treatment and hysterectomy	Bilateral	Both sealed	Malignant papilloma of the tube with involvement of the uterine cornua	Reports self in excellent condition (1 yr.?)
7	Bültmann (5)	50	2	Bleeding; dull drawing pain in lower right quadrant; bleeding continues despite X-ray castor oil doses administered 3 times with only temporary results	Diffuse thickening of right adnexae; preoperative diagnosis of metrorrhagia	Total hysterectomy and bilateral salpingo-oophorectomy	Right	Both open	Right-sided primary medullary tubal carcinoma with metastasis to both ovaries and omentum	Reported 2½ months post-operative
8	Callahan (6)	42	0	Sacral backache; slight vaginal discharge; frequent urination	Enlarged retroflexed uterus; painful when moved; large sausage-shaped right mass; small round tender mass in left fornix	Bilateral salpingectomy followed by panhysterectomy, pan-oophorectomy and wide removal of broad ligament	Bilateral	Both sealed	Bilateral adenocarcinoma and tuberculosis of the tubes; tuberculous of the uterus	2 years, 3 months post-operative, general condition good except for tuberculous fistula
9	Cameron (7)	62	0 (virgin)	Copious watery discharge			Right		Primary carcinoma of right tube	
10	Cameron (7)		0	Profuse uterine hemorrhage caused by fibromatous uterus			Right	Right sealed	Salpingitis; primary carcinoma of right tube	
11	Engelkans (9)	60	0 (virgin)	Backache	Anteflexed uterus; left tube thickened	Bilateral salpingo-oophorectomy and panhysterectomy	Left	Left sealed	Alveolar carcinoma	Death from intestinal metastasis a short time after operation



Review of 43 Cases of Primary Carcinoma of the Fallopian Tube, Including the Author's Case (Case 20), Reported Since Wechsler's Review of 196 Cases in 1926, Making a Total of 239 Cases in the Literature

Case No.	Author	Age	Para	Symptoms	Physical Findings	Operation	Side	Fimbriated end	Microscopic Findings	Reported Post-operative results
12	Frankl (12)	58	5	Obstipation and pain on defecation; loss of weight and appetite; faintness; foul-smelling discharge; abdominal pains; 14 days continuous bleeding	Cystocele; rectocele; uterus elongated, thickened, hard, anteverted	Bilateral salpingo-oophorectomy and panhysterectomy	Left		Primary glandular carcinoma with secondary solid tendency to necrosis.	Death from recurrence 2½ months later
13	Frankl (12)	45		Pain in abdomen; loss of weight			Left (hut right inflamed)		Solid papillary carcinoma in early stage with marked vascularization; inflammation in right tube	Entirely well after 2 years
14	Frankl (12)	37		Discharge for 3 months	Enlarged uterus; ovaries enlarged and cystic; left hydrosalpinx		Right	Right sealed	Papillary carcinoma with cell proliferation and ramification; cancer nests in left ovary, uterus and appendix	
15	Frankl (12)	57		White, often yellowish discharge; occasional bleeding	Large resistant mass in pouch of Douglas		Left		Characteristic papillary carcinoma of tube and cancer of uterus	Death 3 years later
16	Frankl (12)	42		Had suffered abdominal pains ever since a fall 2 years previous which caused genital bleeding; continual profuse discharge mixed with blood for several weeks	At left, next to the uterus, a sensitive tumor is palpable; right adnexae enlarged		Bilateral		Solid psiform carcinoma showing, in places, papillary structure	Died of recurrence 2 years later
17	Frankl (12)	51		Abdominal pains, brownish liquid discharged every 10 to 14 days; swelling of left leg 3 weeks ago			Bilateral		Bilateral papillary carcinoma of tubes	Death after 4 months
18	Frankl (12)	63		Discharge, first yellow, then bloody; pain in abdomen; fever			Bilateral	Both sealed	Solid, small alveolar carcinoma	Death 9 days later of pussy peritonitis
19	Frankl (12)	68		Discharge; recently very profuse			Right		Primary glandular carcinoma of right tube	Death 1 year 4 months later
20	Gallagher	52	4	Vaginal bleeding, intermittent, at times profuse; slight soreness in left hip	Second degree laceration of perineum; palpable mass on left side of uterus	Bilateral salpingo-oophorectomy and supravaginal hysterectomy	Left	Left sealed	Primary carcinoma of left tube; cyst replacing left ovary; chronic inflammation of right tube; atrophic right ovary; endometrial polypus of uterus	Condition excellent (5 months)
21	Gittelson (13)	35	1	Abundant discharge; leucorrhea; pains and feeling of fullness in abdomen	Right adnexae considerably enlarged; diagnosis of ruptured peritoneum; retroversion and flexion of uterus and right salpingitis	Colpoperineorrhaphy; right salpingo-oophorectomy; left oophorectomy; hysterectomy; shortening of round ligament	Right		Adenomatous tubal carcinoma, presumably primary	Still in good condition (short time)

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Case No.	Author	Age	Para	Symptoms	Physical Findings	Operation	Side	Fimbriated end	Microscopic Findings	Reported Post-operative results
22	Haselhorst (14)	27	1	Abdominal pains; fever	Adnexae sensitive; right tube distinctly thickened	Bilateral salpingectomy and appendectomy	Right	Right sealed	Primary muciparous adenocarcinoma	No recurrence (very recent)
23	Heil (15)	58	5	Bleeding and foul-smelling discharge 12 years previous; recently profuse bloody discharge	Diffuse tumor of left adnexae, recently increased in size	Total hysterectomy and salpingo-oophorectomy	Left		Left basal-cell tubal carcinoma; right pyosalpinx; left simple ovarian cyst	Death from rectal recurrence 1½ years later
24	Kittler (16)	45	1	Abdominal pains	Tumor in pouch of Douglas apparently arising from right adnexae	Supravaginal hysterectomy and bilateral salpingo-oophorectomy	Right		Primary right tubal carcinoma with implantation metastasis of endometrium; myoma of uterus; right dermoid cyst	Death from ileus 14 days postoperative
25	Klein (17)	47	0	Postclimacteric hemorrhage; feeling of fullness in abdomen	Chronic bronchitis and emphysema of both lungs; body of uterus small, anteverted; to right in back of uterus, a small adnexal tumor of about 5 cm.	Because of patient's poor condition only the right tube was removed	Right	Open	Primary papillary tubal carcinoma complicated with tuberculosis of tube	Still well, but operation very recent
26	Kurtz (18)	38		History and physical findings not given			Left		Primary tubal carcinoma, central part pseudo-papillary, the remainder alveolar with unusual giant cell formation	Well, 7 years post-operative
27	Le Balle and Patay (19)	44	0	Irregular periods; leucorrheal discharge, clear, profuse, not bloody but gummy, later foul-smelling; loss of weight	Slightly irregular indurated cervix; uterus slightly enlarged, adhering to thickened right adnexae; right tube size of large nut, not sensitive	Subtotal hysterectomy, right salpingectomy	Right	Right sealed	Alveolar carcinoma of right tube	No recurrence 16 months postoperative
28	Le Balle and Patay (19)	45	0	Intermittent hydromelia; reddish watery odorless discharge	Small left hydrosalpinx	Subtotal hysterectomy; left salpingo-oophorectomy	Left		Cylindrical epithelioma, tubular or ovarian in origin, probably tubular	Recurrence after 2 years; case is hopeless
29	Le Balle and Patay (19)	58	0	Sanguineous discharge	Adherent mass, size of mandarin, on side of uterus	Total abdominal hysterectomy; bilateral salpingo-oophorectomy			Alveolar carcinoma of tubes	
30	Liang (20)	39	1		Retro-uterine tumor	Panhysterectomy; bilateral salpingo-oophorectomy	Right	Right sealed	Primary papillary right tumor; probable metastasis to left tube	Favorable results so far (2 months)
31	Schlaak (23)	39	0 (virgin)	Leucorrhea; slight pain in right abdomen; slightly debilitated	Below and back of the uterus, to the right, a plum-sized, easily palpable tumor; preoperative diagnosis, intra-ligamentary myoma	Laparotomy with extirpation of tubal tumor	Right	Right sealed	Alveolar carcinoma of tube	Good condition after 6 months



Review of 43 Cases of Primary Carcinoma of the Fallopian Tube, Including the Author's Case (Case 20), Reported Since Wechsler's Review of 196 Cases in 1926, Making a Total of 239 Cases in the Literature

Case No.	Author	Age	Para	Symptoms	Physical Findings	Operation	Side	Fimbriated end	Microscopic Findings	Reported Post-operative results
32	Scott (24)	47	1	Pelvic pain		Panhysterectomy; bilateral salpingo-oophorectomy	Left	Left sealed	Primary papillary alveolar tubal carcinoma	Favorable so far (2 months)
33	Scott (24)	61	0	Bloody vaginal discharge, headache		Left salpingo-oophorectomy; right salpingectomy	Left	Left sealed	Papillary carcinoma of left tube	Death following inoperable metastatic recurrence
34	Wharton (28)	48	1	Menorrhagia; abdominal tumor	Large uterine myoma	Hysterectomy; bilateral salpingo-oophorectomy			Primary carcinoma of tube	Peritoneal recurrence; death after 3 months
35	Wharton (28)	53	4	Pain in left side; watery, bloody vaginal discharge	Retroflexed uterus; salpingitis	Left salpingo-oophorectomy; curettage			Primary carcinoma of tube	Recurrence and death 4 years later
36	Wharton (28)	48	0	Loss of weight; weakness		Appendectomy; right salpingo-oophorectomy			Primary carcinoma of tube	Recurrence and death 13 months later
37	Wharton (28)	47	4	Abdominal pain	Chronic salpingitis	Panhysterectomy; bilateral salpingo-oophorectomy			Primary carcinoma of tube	Death from hemorrhage 7 days later
38	Wharton (28)	46	0	Abdominal enlargement; pain	Pelvic tumor (?)	Partial removal			Primary carcinoma of tube	Death 2 months post-operative
39	Wharton (28)	43	3	Bloody vaginal discharge; abdominal tumor	Chronic salpingitis	Curettage; bilateral salpingectomy, left oophorectomy; appendectomy		Sealed	Primary carcinoma of tube	Well after 1 year
40	Wharton (28)	29	0	Pelvic pain; leucorrhea	Tenderness in lower left quadrant; inflamed cervix; limited mobility of uterus; enlarged, adherent, sensitive adnexae; mass in left fornix	Hysterectomy; bilateral salpingo-oophorectomy	Left	Sealed	Primary carcinoma of left tube; epithelial hyperplasia of right tube	Well 2 years post-operative
41	Wharton (28)	52	0	Bloody vaginal discharge	Small mass in left tube	Hysterectomy; left salpingectomy	Left		Primary left tubal carcinoma	Well in 1929
42	Wolfe (29)	56	1	Vaginal discharge; pain in right side radiating to lumbar region	Abdomen distended and "fluid wave" elicited; irregular mass in right fornix	No operation; abdominal paracentesis	Bilateral		(Autopsy) Bilateral papillary adenocarcinoma of tubes; metastatic carcinoma of right ovary; secondary peritoneal carcinomatosis	Death, despite treatment
43	Zweifel			Discharge of dirty, watery, yellowish liquid at intervals of several weeks			Left		Primary carcinoma of tube	Death from peritonitis

in the middle or distal third of the tube and varies in size from the thickness of a finger to that of a man's head. The neoplasm expends its growth energy toward the lumen of the tube and distends it enormously before there is any tendency to infiltrate the walls of the tube. This fact, taken in conjunction with the high percentage of cases with sealed abdominal extremities, makes one wonder at the high mortality. It would seem that, given even moderately early recognition and excision, this resistance to invasion on the part of the tubal wall, together with the sealed abdominal ostium, would make for a better prognosis than obtains at present.

A common associated condition is ovarian cyst, with about 8 per cent of the cases indicating conversion of the ovary into a large cyst. Frequently there is a hydrosalpinx of the apparently uninvolved tube. Combining this series with that of Wechsler, one finds tuberculosis complicating the carcinoma in only 8 instances. There are remarkably few cases in which a definite preexistent bacterial infection of the tubes can be demonstrated.

Microscopically the case here reported is quite unusual in that it shows no papillae or gland formation such as is commonly found in carcinoma of the tube. By far the majority of tubal cancers are papillary, alveolar, or some transitional stage between the two. Bültemann and Beck<sup>2</sup> each describe cases of medullary carcinoma somewhat similar to mine. Bültemann's case metastasized to both ovaries and to the omentum, apparently by implantation from the open fimbriated extremities. The patient was in good condition at the time of the case report but the interval since the operation was only two and one-half months. Beck's case was partly medullary and partly papillary with the abdominal ostium of the tube sealed. Both cases were unilateral.

The prognosis is universally believed to be most grave. Only 37 of these 43 cases report the outcome of the operation. Of these, 20 have already died of recurrences and 17 were still living at the time of the report. However, since this is a very recent series, the time since operation in the majority of instances is much too brief to indicate a cure. In fact there is only one, reported by Kurtz,<sup>18</sup> that could be considered cured. She is still alive and well seven years postoperative. There are four other patients who are living two years postoperative (Bortini, Frankl, Callahan, and Wharton) but this time interval cannot be said to establish a cure. Frankl's patient had a papillary carcinoma of the left tube, evidently in the early stage of development; the condition of the fimbria is not given. The other three patients all had the fimbriated extremities

sealed and there was no evidence of metastasis at the time of operation.

The following is a report of a personally observed case of primary medullary carcinoma of the fallopian tube.

#### REPORT OF CASE

Mrs. M. H., aged 52, admitted to St. John's Hospital, December 2, 1929.

*Complaint.*—Tumor in abdomen; bloody discharge.

*Preoperative Diagnosis.*—Fibroid uterus.

*Operation.*—Supravaginal hysterectomy. Bilateral salpingo-oophorectomy.

*Family History.*—Irrelevant. Past history contains nothing germane except for the following: The patient has been married 38 years and has four living children, the youngest 24 years old. She has had no miscarriages. The menopause was completed 2 years previously.

*Present Illness.*—For the past three months the patient has noticed a bloody vaginal discharge. It is intermittent and at times is very profuse; no clotting. She has lost 16 pounds in two months; now weighs 230 pounds. She had a dull soreness in the left hip for one day previous to admission. No discharge other than the vaginal bleeding.

*Physical Examination.*—Essentially negative. The abdomen is greatly distended by fatty tissue in such quantities as to make examination difficult. There is a second degree laceration of the perineum. Cervix is negative. A firm mass about the size of a grapefruit was felt in the left lower quadrant. It moves with the cervix and seems to be connected to it.

*Operation.*—The operation was started under spinal anesthesia but shortly after the abdomen was opened the patient began to strain and vomit. Since the vomiting could not be controlled, ethylene was used to continue the operation. On opening the abdominal cavity a small amount of straw-colored fluid was noted. There were a few omental adhesions to the pelvic structures but no intestinal adhesions. The intestines were packed off and a left ovarian cyst, about 10 cm. in diameter, was exposed. The uterus was small and pushed toward the right side. The left tube was enlarged at the distal end and riding free on the surface of the cyst. The cyst was firmly adherent in the culdesac and ruptured on removal. A dirty straw-colored fluid exuded. The right tube and ovary were small and enclosed in a fine web of adhesions. The uterus was removed, leaving the cervix intact. Both tubes, the right ovary, and the left ovarian cyst were removed. The sigmoid was free and there were no glands palpable in the pelvis. Examination of the gallbladder, liver, and stomach was negative. The appendix was atrophic and, because of the patient's condition, it was not disturbed. The abdomen was closed in layers about a cigaret drain. The patient was discharged in good condition.

*Gross Description.*—The uterus is small and contains an endometrial polypus. A collapsed cystic sac appears in the position of the left ovary. The left tube ends in an oval enlargement about the size of a large olive. The end is rounded and sealed, presenting a smooth surface. On section of the tube, this enlargement was found to be a well localized tumor. The right tube and ovary were small and showed evidence of chronic inflammation.

*Microscopic Description.*—Sections show large masses of medium sized epithelial cells whose nuclei are vesicular and stained rather intensely. Mitotic figures are frequently seen. Throughout



these large masses of malignant epithelial cells one sees pink staining areas made up of connective tissue which is infiltrated with many lymphocytes. In these areas run the blood vessels. These pink staining regions may be the trabeculae of connective tissue which are coated with the masses of carcinoma and, hence, are the framework of the papillae. No characteristic gland or papillae formation is seen such as is encountered in the usual carcinoma of the tube. The cells here show little differentiation and take the form of a medullary carcinoma.

*Histological Diagnosis.*—Medullary carcinoma of the left tube.

*Postoperative Course.*—The patient left the hospital in good condition and has remained well for the five months since the operation.

This case presented no characteristic findings before the operation. The vaginal bleeding two years after the menopause might possibly be attributed to the endometrial polyp. Other than this, there were no symptoms referable to pelvic disease. She had four normal pregnancies, no miscarriages and no evidences at any time of salpingitis. Upon physical examination a mass was felt to the left of the uterus which proved to be an ovarian cyst. There was nothing in the patient's history, symptoms, or physical examination to point to cancer, with the possible exception of the slight loss of weight.

Since abdominal exploration today is not a formidable procedure it would seem advisable to investigate surgically any abdominal mass occurring in a woman with postclimacteric bleeding.

#### SUMMARY

Although undoubtedly rare, primary carcinoma of the fallopian tube is probably not so rare as was formerly thought. The age incidence is that which is usually to be expected in dealing with cancerous conditions. There is rather a high percentage of completely or partially sterile women. The etiology is still in doubt. There is no characteristic symptom picture. Pain and discharge, although not always present, are the most frequent symptoms. Backache and menstrual disorders, constipation and dysuria are rather common. Pelvic examination is frequently confused by a complicating ovarian cyst or myoma of the uterus. Accurate preoperative diagnosis has been claimed in only one instance. Radical surgery with removal of both tubes, both ovaries, the uterus, and the pelvic lymphatics, as early as possible, is the only hopeful treatment. The prognosis seems to be slightly better in those cases having sealed fimbriated ends. My case was unusual in that the cancer was medullary rather than papillary or alveolar.

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## ERYSIPELAS AS A COMPLICATION OF EARLY SURGICAL INTERFER- ENCE IN MASTOIDITIS\*

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One of the most confusing, although probably the least serious, postoperative complications in mastoiditis is erysipelas. Several factors regarding postmastoidectomy erysipelas add to the confusion and inability to differentiate this disease, i. e., the time of onset, usually the third or fourth postoperative day; the mode of onset, the chill; the sudden temperature rise, vomiting, headache and severe prostration, moderate leukocytosis; and last but not least the comparative negative physical findings.

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Very little has been said in recent otological literature about this complication and yet, while it is comparatively infrequent, it is probably the most common complication in certain types of mastoid disease. In reviewing a series of mastoidectomies (173 in number) I find that erysipelas was a postoperative complication in four cases. This bears no special significance except that these patients were almost exclusively operated upon in the acute stage of the mastoiditis. This is not surprising when we consider just what erysipelas is.

Frazier,<sup>1</sup> writing in "Keen's Surgery," defines erysipelas as "An acute infective inflammation of the skin or mucous membranes, of febrile nature and varying severity, caused by the entrance through a wound or abrasion of a streptococcus and tending to spread through the lymphatic system." In performing a mastoidectomy the wound is made and the streptococcus is permitted to enter and spread through the lymphatic system. The old medical literature, and particularly the old surgical literature, is filled with descriptions of so-called epidemics of erysipelas in surgical wards. Zuelser,<sup>2</sup> in reporting the Parisian epidemic of 1865 to 1869, stated that 350 people died annually of this disease. Savary<sup>3</sup> reported a similar outbreak at St. Bartholomew's Hospital in London in 1873. Since then there have been no reported epidemics of any severity due, no doubt, to the fact that Lister's work on asepsis began at this time to have a marked effect. In the old textbooks erysipelas is divided into medical, idiopathic or facial varieties, and the surgical or traumatic form.

#### ETIOLOGY

Postmastoidectomy erysipelas falls into the latter two groups. A streptococcus is conceded as the common active microorganism in practically all cases of acute mastoiditis. It involves primarily the mucous membranes with secondary involvement into the bone substance. It has long been known that this organism is most virulent when found in acute bone infections. In the early stages the patient has not had time to develop a systemic immunity to this organism or, to state it in another way, the virulence of the organism has not had time to subside.

In order to reach the infected mastoid cells it is necessary to approach through noninfected soft tissues. Unfortunately, during the surgical procedure it is almost impossible to avoid traumatizing these overlying soft tissues. The amount of trauma to the wound borders is easily understood when we appreciate the fact that they are overlying hard bone and that heavy instruments, *e. g.*, gouges, curets, rongeurs and retractors, are necessarily used in

performing this operation. Since all these patients are operated upon with practically the same technic, the same instruments and the same amount of surgical trauma, it is fairly clear that we must look elsewhere for the etiology of the complication. Too early surgical interference is the real etiological factor of post-mastoidectomy erysipelas.

Erysipelas may also be an unrecognized complication of simple otitis media and, of course, surgical interference at such a time would be almost disastrous, as illustrated by the following cases:

#### REPORT OF CASES

Case 1. J. G., boy, (fig. 1) was admitted to Isolation Hospital with a diagnosis of acute mastoiditis. He had a discharging ear of four days' duration and was convalescing from mild scarlet fever. When I first saw him he had a temperature of 102° and 18,000 leukocytes. There had been some nausea and he was suffering from pain over the entire right side of the head, with the most tender point just back of the right ear. He protected this ear very carefully. Upon examination the only external finding was a skin fissure along the postauricular sulcus and swelling of the right posterior cervical glands. The external auditory canal was swollen and there was an open perforation in the posterior drum segment through which a moderate amount of yellow pus was exuding. Due to the extreme tenderness of the right external ear I was inclined to think this boy had a beginning external otitis. Mastoiditis without postauricular edema is never so painful and, without complications, never makes the patient so sick. The following day both eyes were swollen and there was considerable edema of the upper face. There was no discoloration of the skin. He had a sustained temperature of 104° and at this time I advised my intern to suspect erysipelas. The following day he had a complete butterfly type of erysipelas over his entire face. The ear promptly quit discharging and he was dismissed from the hospital ten days later.

Case 2. Mrs. S., aged 57, presented a similar condition. I was called to see her at her home on account of a very painful, discharging ear, a fever of 102° and severe headache. She had had one chill, was sleepless and appeared to be quite sick. This was her first attack of ear trouble, but there had been a particularly stormy onset with three days of excruciating ear pain and spontaneous drum rupture. The apparent etiology was influenza. I promptly made a diagnosis of a beginning thrombophlebitis of the sigmoid sinus and performed a mastoidectomy the following morning. The bone was in the acute stage of infection and bled freely. The postoperative convalescence was stormy. As the clinical course was not typical for a sinus thrombosis I was inclined to alter my postoperative diagnosis to that of meningitis. At the height of my dilemma the patient developed a typical erysipelatos eruption over the entire left side of her head (fig. 2). During the course of this painful complication she developed a thrombophlebitis of her left leg. Her complete recovery was slow but uneventful.

The incidence of erysipelas would probably be much greater except for the fact that it is a comparatively rare complication in children. Anders<sup>4</sup> has shown in a series of 781 cases





Fig. 1. Erysipelas starting in a postauricular fissure. At onset had most of the clinical findings of acute mastoiditis, including suppurative otitis media.

Fig. 2. Erysipelas complicating otitis media. Early symptoms misinterpreted as arising from infection within the mastoid proper.

only 10 were under ten years of age. My records show that 53 per cent of the mastoidectomies were performed on children of a corresponding age.

SYMPTOMS

Lorie<sup>5</sup> has noted a marked lateral nystagmus as an early sign in erysipelas. This finding was absent after the first forty-eight hours. I have noticed this symptom in several patients since it was brought to my attention.

Our present ideas regarding the contagiousness of this disease are generally unchanged. Erysipelas patients are strictly isolated and require special nurses who are themselves required to remain in isolation for five days after leaving the care of an erysipelas patient (at least, that is the custom at the grade A hospitals in Kansas City). So far as I have been able to ascertain, there has not been one proved case of erysipelas transmitted by a nurse in these hospitals; neither has there been a proved case of crossed infection. This extreme precaution is a carry-over from the old obsolete ideas. The contagious aspect of erysipelas has

been greatly overrated. Its low contagiousness was impressed upon me during my intern days when erysipelas developed in the surgical wards. My surgical chief, Dr. Carl Hamann, of Cleveland, usually looked upon it with a considerable degree of optimism, particularly in wounds of a chronic nature where healing had been retarded. I was also astonished at his complete indifference to the removal of the patient from the surgical ward and I do not recall ever having heard him make such a request. Frazier<sup>6</sup> states that, "It is usual to advise the isolation of all infected patients, but such a procedure is often difficult of attainment and unnecessary as a rule."

Table 1 illustrates the time relation of the erysipelas to the duration of the acute mastoiditis, as well as the other relative findings and course of this disease. It should be noted that none of the patients died from the erysipelas although there were some very unpleasant complications (case 2).

Table 1. Time Relation of Erysipelas to Mastoiditis

Age	Location	Duration	With or Without Mastoidectomy	Time Relation of Erysipelas to Duration of Mastoiditis	Complication	Condition on Dismissal
38 yrs.	External ear, eyes, nose	3 days	Without	Erysipelas three days before mastoid tenderness	Alcoholism	Improved
46 yrs.	Ear, mastoid-temporal region	7 days	With	27 days after mastoidectomy	None	Improved
60 yrs.	Face	6 days	Without	At same time	None	Improved
41 yrs.	Face, ear	5th postoperative day	With	5th postoperative day	None	Improved
16 mos.	Face	7 days	With	4th postoperative day	None	Improved
3½ yrs.	Neck	1 day after admission	With	6 days after erysipelas	None	Improved
50 yrs.	Check, ear	3rd postoperative day	With	3rd postoperative day	None	Improved

# SUMMARY

Too early surgical interference in mastoiditis is contraindicated for the following reasons: (1) The patient may recover without operation; (2) the virulence of the organism is probably at its height; (3) the patient is still sick and the general systemic reaction causes bone invasion by the virulent organism; (4) localization and walling-off of the infected areas have not yet taken place; (5) surgical trauma at this time brings an active virulent organism from an acutely infected field (the bone) to a noninflamed and noninfected tissue (the overlying soft tissues).

In its early stages, erysipelas is difficult to diagnose and may be misinterpreted for sigmoid sinus thrombosis, meningitis, brain abscess, pneumonia, pyelitis, and so forth.

The complication of erysipelas is, in most cases, an indication of too early surgical interference in mastoiditis.

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## ENDOCRINOLOGY; ITS APPLICATION IN GENERAL PRACTICE\*1

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Disturbances of the endocrine system constitute no small part of the general practitioner's every day problems. To meet these problems adequately one need only familiarize himself with the functions of the various glands, the signs each presents when its function is impaired, and the value of treatment as available today.

The ductless glands under normal conditions elaborate specific substances (hormones) which for the most part are poured into or absorbed by the circulating blood and are thus transmitted to various distant structures, organs, and tissues of the body where they influence appearance, characteristics, and functions. It has been definitely established that these secretions are essential in sufficient quantity and quality for proper growth and development, both physical and mental, for proper

sexual function, psychic stability, and for the energy output that governs metabolic processes.

The chief means of diagnosing an endocrine disturbance is by careful history and physical examination. Laboratory, X-ray, and special examinations are helpful in checking clinical observations and revealing the finer points in diagnosis although they are not any more essential than for the accurate diagnosis of other systemic disturbances.

That the results of endocrine therapy may have proven disappointing can be attributed in many instances to insufficient and incomplete treatment. With the exception of thyroid substance the oral administration of glandular preparations is of questionable value, the active principles being destroyed by the digestive juices of the stomach and bowel. On the other hand, the subcutaneous injection of glandular extracts has proven quite satisfactory when given in ample amounts over a sufficient period of time. Treatment is often incomplete in biglandular and multiglandular disorders where treatment directed toward all existing disturbances is necessary to obtain best results.

The simplest classification of endocrine disorders is one which divides them into cases of hypofunction and hyperfunction. Since time will not permit discussion of the entire field of endocrinology, the following discussion will be confined to the various aspects of hypo-activity of those glands most commonly affected, with consideration of substitutional and replacement therapy.

### THYROID

Deficiency of the thyroid gland in varying degrees occurs at all stages of life. Marked hypothyroidism in the newborn is termed cretinism; in the adult, myxedema.

Unless suspected, cretinism is seldom recognized before the third month of life and usually not until the end of the first year. Should the child be born of a mother showing a thyroid fullness during pregnancy or suspected or known to have hypothyroidism, the newborn child should be watched very closely for signs of cretinism. These early signs are overweight at birth (weighing more than eight and one-half pounds), small, widely separated eyes, broad head, open mouth, protruding tongue, lack of muscle tonus demonstrated chiefly by inability to nurse well, extreme quiet, and coarse voice. These very early signs are supplemented as time progresses by more positive signs of physical retardation, such as delayed eruption of lower incisor teeth beyond the seventh month and delayed walking (standing alone and taking a few steps unassisted)

\* Read at the 73rd Annual Meeting of the Missouri State Medical Association, Hannibal, May 12-15, 1930.

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A



B

Fig. 1. A. Cretin, aged one year. First teeth appeared at ten months (normal six to seven months). Unable to sit unassisted at present time (normal ten months). Usual improvement on thyroid therapy, shown in B, 22 months later.

and talking (monosyllables) beyond the thirteenth month. At the end of twelve months the true cretin has a characteristic facies, better pictured than described. It is expressionless, the eyes are small and widely separated by a flat nose. The abdomen protrudes giving rise to a "potbelly," and an umbilical hernia is usually present. The ligaments are loose, the heels readily made to meet back of the head. The skin has a doughy consistency, is dry and pale. Fat deposits characteristic of hypothyroidism localize over the dorsa of the hands

and feet, around the wrists and ankles, in the supraclavicular fossae and over the lower cervical vertebrae. The hair is coarse and dry.

The first year of life is the period of greatest proportionate growth of the brain as well as the entire body, thus mental retardation is found in direct relation to the degree of thyroid deficiency present.

Unquestionable improvement on thyroid therapy of a suspected case of cretinism will confirm the diagnosis. The X-ray, if available, is of extreme value in confirming the diagnosis in suspected cases as early as the first week of life. It has been demonstrated in the normal child that certain osseous nuclei (lower epiphysis of femur and upper epiphysis of tibia and os calcis) are present at birth and with succeeding months additional nuclei are normally laid down. In cretinism there is found a delay in ossification.

Hypothyroidism may occur after birth in degrees of severity dependent upon the time of onset and extent of hypofunction. If it does not take place until after the first year of life, the child will not have the marked mental retardation of the cretin. Should athyreosis occur in early years, the result is "childhood myxedema," a condition in which are found the characteristics of adult myxedema in a child. Occurring in lesser degrees hypothyroidism in children is manifested by mental retardation and some or all of the physical signs of hypothyroidism, such as fat deposits, dry skin and hair, lethargy or, many times, restlessness and incorrigibility.

In simple (colloid or adolescent) goiter the activity of the thyroid is seldom altered from the normal but if so it is usually reduced, rarely increased. When reduced, signs of hypothyroidism are present. When nervous instability accompanies simple goiter, suspicion of hyperthyroidism may be aroused when in reality hypothyroidism may be present. Tremor, tachycardia, and palpitation may be present in either instance but loss of weight associated with increased food intake, one of the cardinal signs of hyperthyroidism, is never present in simple goiter without other constitutional disturbances. Basal metabolism determination, if available, clears up all doubt in diagnosis.

Myxedema is the result of athyreosis in the adult due to atrophy or fibrosis of the gland. The facies is quite characteristic with its puffiness and infiltration, especially about the eyes. The skin has a lemon color, is dry and thickened and there is a generalized non-pitting edema. Cold extremities, general body aches, and joint pains are common complaints. The myxedematous patient shows a definite tendency to somnolence, fatigues easily and

mentality is sluggish, especially memory. Temperature, blood pressure and pulse are lowered in uncomplicated cases. Chief among the laboratory findings are lowered metabolic rate ( $-40$  per cent being an average) and secondary anemia. Although cardiovascular disease is frequently found, due to time in life myxedema occurs, it is not the cause. The heart muscle in cases of long standing loses its tone which is usually restored on thyroid therapy if there is no true heart damage. Following thyroidectomy myxedema may occur when too much of the gland is removed or when the portion left intact fails to maintain the required secretion of thyroxin.

Hypothyroidism without myxedema occurs in adults at any age. The only complaint may be fatigue and this is a constant one but careful examination will reveal some or many of the signs of hypothyroidism.

**Treatment.**—The success of treating cretinism lies in its prevention. Any woman who develops an enlargement of the thyroid gland during pregnancy or who gives evidence of having hypothyroidism during this period should be given iodine or thyroid substance. Iodine may be given as Lugol's solution (liquor iodi compositus) in daily doses of four to ten minims. Boothby,<sup>1</sup> Jackson<sup>2</sup> and others speak of the danger of promoting thyrotoxicosis by such procedure but the danger of cretinism developing should preclude such precaution. Sandiford and Wheeler<sup>3</sup> have shown that the basal metabolic rate increases after the fifth month of pregnancy to plus 15 and plus 25 per cent in women known to have a normal rate before or during the early months of pregnancy. As suggested by Engelbach,<sup>4</sup> the writer has administered thyroid substance to those pregnant women who failed to show this increased basal metabolic rate. Multigravid women have stated they felt much better during the pregnancy that thyroid substance was given. They have not gained excessively in weight as is prone to occur in hypothyroidism, and their offspring have been mentally alert. An attempt is made to give sufficient thyroid substance to elevate the basal metabolic rate to plus 15 to plus 25 per cent.

After cretinism has developed or as soon as it is suspected, intensive thyroid treatment should be instituted and continued indefinitely. The maximum tolerant dosage is best measured in infants by the rectal temperature. The rectal temperature should be taken daily for one week before thyroid extract is started in order to determine the normal temperature and continued throughout the time thyroid extract is being administered. During the early



Fig. 2. Primary cretinism with secondary anterior lobe pituitary deficiency in 7 year old girl. First teeth at fourteen months (normal six to seven months). Walked at two and one-half years (normal twelve to thirteen months). Talked (poorly) after three years (normal twelve to thirteen months).

weeks of life most infants will tolerate one-twelfth grain (0.005 gm.) to one-sixth grain (0.01 gm.) of desiccated thyroid substance daily. Proportionate doses should be given with advancing age. About every ten to fourteen days an attempt should be made to increase the initial dosage a fraction of a grain until the tolerant dosage is reached. In the infant, this is a fraction of a grain just below that dosage which causes an increase in rectal temperature to over  $100^{\circ}$  Fahrenheit.

In the adult, individual dosage has to be established. It may range between three-quarters grain (0.045 gm.) and six grains (0.4 gm.) daily on the average though it is not uncommon to find patients doing best on higher doses. An attempt should be made to establish the dosage just below that level which produces tachycardia (pulse rate over 96), nervousness, restlessness, tremor, insomnia, emotionalism, or other signs of thyrotoxicosis. If the basal metabolic rate is used as a guide to establish the dosage it has been found best to give sufficient thyroid substance to elevate the basal metabolic rate to plus 5 to plus 10 per cent unless clinical manifestations of overdosage intervene before this goal is attained.

Simple goiter requires no treatment unless accompanied by hypothyroidism. Iodine as a rule is of little value in reducing the size of the gland. In the writer's experience thyroid substance has been more effective. In rare instances of extreme enlargement producing cervical deformity or pressure on the trachea, surgical intervention may be necessary. In





A

B

Fig. 3. A. Myxedema with classical findings. Basal metabolic rate minus 48 per cent. B. Usual improvement on thyroid therapy.

such instances as little as possible of the gland should be removed since there already exists a relative deficiency.

In sclerotic myxedematous patients thyroid substance may cause symptoms of angina pectoris due to increasing the coronary circulation too rapidly. If such occurs treatment should be given cautiously, perhaps in insufficient amounts to entirely overcome the myxedematous symptoms.

Since the physiological action of thyroid substance depends upon the iodine content (Marine<sup>5</sup>), it is well to remember that the different formulas vary. The Burroughs, Wellcome and Company product contains 0.08 per cent iodine. Armour and Company and Eli Lilly and Company advertise their thyroid preparations to contain 0.2 per cent iodine, while Parke, Davis and Company hold theirs to contain 0.3 per cent. It is advisable to select one of these preparations and adhere to it so as to become accustomed to its action. The dosages as recommended here have been based on the product containing 0.3 per cent iodine.

#### PARATHYROID

The parathyroid glands are thought to regulate calcium metabolism and when they are removed or their function is impaired, the familiar condition of tetany results. The parathyroids simulate the pancreas as shown by Lissner and Shepardson<sup>6</sup> in autopsy report in that their absence causes no change in the other ductless glands. Tetany in a mild form occurs chiefly in children with gastro-intestinal disturbances and in severe degree in adults following thyroidectomy during which the parathyroids have been accidentally removed or where the results of operative procedure have disturbed their function (trauma, edema, or sepsis). Tetany may occur during pregnancy and lactation, in gastro-intestinal disturbances, acute infectious diseases, accompanying nervous disorders, occasionally following certain poisons and rarely in epidemic form in which it is infectious.

The symptoms usually occur abruptly consisting of spasms of varying degrees of certain groups of muscles supplied by certain nerves. It is most characteristic when it occurs in the extremities causing carpopedal spasm (flexion of the wrists, flexion of the fingers with extension beyond the metacarpophalangeal joints, plantar flexion of the feet, with flexion of the toes). Such a condition can be produced by pressure on the nerve trunks, in the arm by tying a tourniquet above the elbow, Trousseau's sign. Another simple aid in diagnosis is Chvostek's sign, which is a contracture of the muscles of the face following a tap on the cheek just in front of the ear. The blood calcium in tetany is always below normal.

Following thyroidectomy tetany may occur in a mild and transient form. The earliest signs of nerve excitability should arouse suspicion and treatment instituted if deemed advisable.

The treatment should consist first of supplying the active hormone of the parathyroids as isolated by Collip<sup>7</sup> and supplied under the trade name of para-thor-mone-Lilly or paroidin in doses averaging between ten and fifty units daily in the acute cases. A good plan is to start with ten units daily and increase only as symptoms fail to disappear. An attempt should be made to give the smallest possible dose at all times, being always alert for the early signs of hypercalcemia which are anorexia, nausea and vomiting. In the more severe cases the dosage of parathyroid hormone should be regulated by blood calcium determinations. In chronic cases much larger doses are necessary as the patient develops a tolerance for the present commercial preparation. Lissner and Shepardson<sup>6</sup> report that 160 units daily given a patient during the last months of treatment which had extended over a period of a year failed to bring the blood calcium to normal. Other adjuvant treatment which is essential for best results in cases of parathyroid deficiency is calcium lactate or calcium chloride, gr. 15-20 t. i. d. orally, and intravenous injections of calcium chloride (10 per cent) in 10 c.c. doses given daily or as often as needed. In the diet, meat and foods rich in protein should be avoided, carbohydrates should be increased, and milk in large quantities (one to two quarts a day) is indicated. Addition of vitamins has proven valuable in these cases. Lastly, the addition of thyroid substance, gr.  $\frac{1}{2}$  (0.03 gm.) two to three times daily, has been advocated by Hjort and Eder<sup>8</sup> to be essential for best results.

#### THE PITUITARY BODY

The pituitary body is divided into an an-

terior glandular portion, posterior nervous portion, and a middle portion.

The functions of the anterior lobe are stimulation of statural growth and sexual development and maintenance of normal sex function. Should anterior lobe insufficiency occur in preadult life, the result is infantile physical and sexual development. Should it occur in postadult life, physical and sexual development already having been attained, the result is decreased sexual function.

When anterior lobe insufficiency has occurred in preadult life it is differentiated from hypogonadism by stature. Measurement from the symphysis to the vertex is greater than that from the symphysis to the soles of the feet and the total span is less than the total height, the result of retarded long bone growth. The opposite occurs in hypogonadism in which the long bones close late, the lower measurement (symphysis to the soles) is greater than the torso; also, the total span is greater than the height. Should hypofunction of the anterior lobe occur in postadult life, differentiation from functional hypogonadism is made chiefly by symptomatology. Muscular fatigue and nervous instability are less in anterior lobe insufficiency than in hypogonadism and the many symptoms referable to the nervous, gastro-intestinal, and cardiovascular systems in hypogonadism are absent or less pronounced in cases of anterior lobe insufficiency.

Secretions from the posterior and middle lobes unite and are extracted together to form the commercial extracts of the posterior lobe. Functions attributed to these portions of the hypophysis are (1) stimulation of smooth muscle, (2) diuretic-antidiuretic action, and (3) influence on fat and carbohydrate metabolism. Stimulation of smooth muscle includes the effect on blood pressure brought about by contraction of peripheral arterioles. This action as well as that on uterine muscle and intestinal muscle is well understood. The effect of posterior lobe extracts on polyuria has likewise been universally observed. Increased sugar tolerance has been repeatedly observed in posterior lobe pituitary insufficiency while decreased sugar tolerance is found in hyperpituitarism. The effect on fat metabolism as shown by the early removal experiments of Crowe, Cushing, and Homans,<sup>10</sup> has been questioned though never disproven. Newberg and Johnson<sup>11</sup> in recent studies on obesity have concluded that "obesity is never directly caused by abnormal metabolism but it is always due to food habits not adjusted to the metabolic requirement,—either the ingestion of more food than is normally needed or the failure to reduce the intake in response to a lowered re-

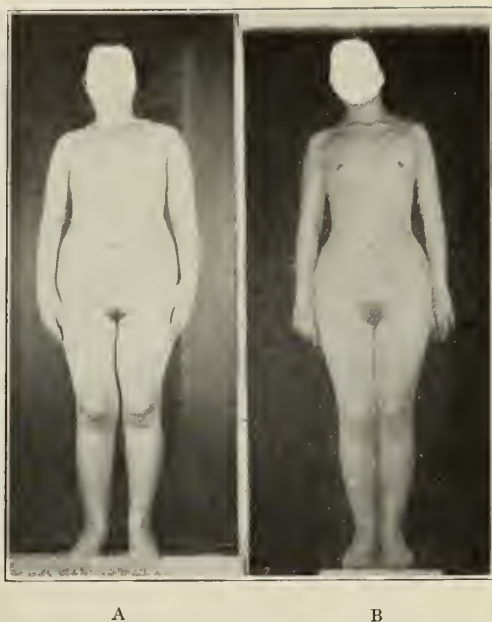


Fig. 4. Pituitary thyroidism in girl aged 11 years, A, before; B, seven months after, combined pituitary (both anterior and posterior lobe extracts) and thyroid therapy. Loss of twenty pounds in weight. Growth of one and five-eighths inches in height. Polyuria and enuresis overcome.

quirement." The agent which influences this lowered requirement may well be held by the posterior lobe of the hypophysis. Obesity due to posterior lobe pituitary insufficiency is localized over the pectoral and pelvic girdles. It is frequently associated with a generalized adiposity, though not necessarily so.

The present treatment of anterior lobe insufficiency is carried out best by the subcutaneous injection of extracts. The one most commonly used is antuitrin<sup>†</sup> of which 1 to 2 c. c. (15 to 30 minims) can be given continuously without danger of reaction. A headache may occur immediately following the injection in rare instances but can be corrected by reducing the dosage. Quite satisfactory results have been obtained in stimulating statural growth and sexual development by its usage during preadolescence. Sexual dysfunctions in the female adult have likewise been corrected. The work of Evans and Simpson<sup>9</sup> demonstrating the presence of at least two hormones in the anterior lobe promises specific therapy in the near future.

*Treatment.*—Posterior lobe extracts are supplied by the various drug firms under the names pituitrin, infundin, and pituitary extract (posterior lobe) and are given subcutaneously. They are frequently employed in obstetrics and for stimulation of peristalsis in dosages ranging from minims 5 to 10.

For the control of polyuria 1 c.c. (minims 15) of the obstetrical pituitrin may be given





Fig. 5. A. Polyglandular disorder (pituitary, thyroid and gonad deficiency) in woman aged 50 years. Trochanteric adiposity of prolonged hypogonadism in evidence. B. Loss of 57 pounds after four months' treatment on combined substitutional therapy.

as often as necessary to control the symptoms.

For treating obesity the dosage should be regulated to the individual's tolerance. A plan recommended by Engelbach<sup>12</sup> is to start with a relatively small dosage, say minims 10 of the obstetrical pituitrin, and increase one minim each injection until the intestinal reaction occurs. This reaction consists of abdominal cramps and colic followed by bowel evacuation fifteen or twenty minutes after the injection is given. When this occurs the dosage should not be increased further for fear of producing the general reaction which is an untoward one.

The posterior lobe contains two active principles (hormones) as demonstrated by Kamm and co-workers.<sup>13</sup> These are supplied under the names pitocin and pitressin. Pitocin may be used instead of the obstetrical posterior lobe extracts in cases of uterine inertia in which increase of blood pressure is undesirable. Pitressin may be used instead of the entire extract for the temporary increase of blood pressure, for stimulating peristalsis, in postpartum anuria, and for pituitary polyuria. Saturation of the nasal mucous membranes with pitressin has proven effective in treating pituitary polyuria.

#### GONADS

Gonadal insufficiencies may be complete (castrate) or partial (eunuchoid). In the partial group should be included those cases in which an ovary or part of one or both ovaries has been resected.

The diagnosis of eunuchoidism depends up-

on symptomatology and statural make-up. When hypogonadism has existed in the pre-adult age there is an overdevelopment of the long bones, the result of delayed fusion of the epiphyses with the osseous nuclei. In actual measurement this reveals an increase in the distance from the symphysis to the soles over that from the symphysis to the vertex, and a total span greater than the height. Should the onset of partial or complete hypogonadism occur in postadult life or after the long bones have fused with their centers such disproportion should not be expected. In postadult life however there are fat deposits considered characteristic of hypogonadism to be found over the trochanters, mons, and mammae. These may not be definite until about the age of thirty in the female and thirty-five in the male. In later adult life an associated generalized adiposity is to be found. These adiposities are to be differentiated from those of hypothyroidism and of hypopituitarism which have been described under their respective headings in this paper.

Development of the external genitalia depends upon age incidence of the disorder. Should it occur before adolescence in either sex, the external genitalia are underdeveloped and infantile, as also are the uterus, ovaries and prostate. Size of genitalia is not always an index of function for in the male normally developed genitalia often lack proper function, explained as due to hypertrophy of the interstitial tissue which governs the development of primary and secondary sex characters. Should the time of onset be postadolescent, one would not expect to find genital hypoplasia for normal development and function had previously occurred for a number of years.

The menstrual history reveals a delayed onset, fifteen to sixteen years (normally thirteen to fourteen years in this region) when hypogonadism has existed in girls at adolescence. There is increased interval between menses and decreased flow with dysmenorrhea as a frequent complaint. Libido and potency are diminished or absent.

Far more often the female patient presents herself not for a menstrual disturbance or sexual deficiency but rather for correction of symptoms referable to the nervous, cardiovascular, or gastro-intestinal systems. The history often strongly suggests organic disturbance of these systems which cannot be confirmed on careful physical and special examinations. Migrainous headaches, nervous instability, psychic changes, emotionalism, general body pains, marked asthenia bordering on prostration, hot flushes, tachycardia, palpitation, precordial pain and distress, anorexia, py-

rosis, distress after eating, distention, constipation, nausea and vomiting number among the numerous complaints these patients may have. In the history of a hypogonad female there are three important symptoms almost constantly present, namely, tendency to amenorrhea, migrainous headaches aggravated at time of menses, and spastic constipation.

Disorders of the genital system due to hypogonadism have been differentiated from those due to anterior pituitary insufficiency under the discussion on pituitary disorders and repetition is not required.

There are other points of diagnosis in the hypogonad, such as angled facial characteristics, receding chin, sparsity of hair, narrow buccal cavity, high pitched voice (in male), etc., which must be considered when finer detail is required.

Cryptorchism is a congenital malposition of the sex organs in the male in which one or both testicles are located intra-abdominally or have descended only as far as the inguinal canal. In many individuals so afflicted the secondary sex characteristics are normal and differ in this respect from the early castrates. This is due to a hypertrophy of the interstitial substance, possibly an attempt to compensate for the deficiency in spermatogenic tissue (Sertoli's cells).

*Treatment.*—Treatment consists of replacement or substitutional therapy. Replacement therapy so far has consisted of autotransplantation and homotransplantation which on the whole has given nothing more than temporary relief in either sex. In the hands of Steinach, vasectomy in the male has given satisfactory results but this procedure has not been popularized.

Substitutional therapy in the male, such as testicular extract or testicular substance, has been of no value. On the other hand, the subcutaneous injection of ovarian extracts is beneficial. Oral preparations like those of the other glands with the exception of thyroid substance have proven of little value in the writer's experience.

It is the opinion today that the ovary liberates two hormones, (1) the follicular hormone of Allen and Doisy<sup>14</sup> to which Doisy has given the name theelin (which at this writing is not on the market), and (2) the hormone liberated by the corpus luteum\* (Corner,<sup>15</sup> Allen,<sup>16</sup> Hisaw and Leonard<sup>17</sup>). The follicular hormone, however, is at present marketed under the trade names amniotin and estrogen for subcutaneous use. It is recommended that these preparations be given in doses of 1 c.c.

\* This hormone is not on the market today and should not be confused with corpora lutea that has been available for some time past.

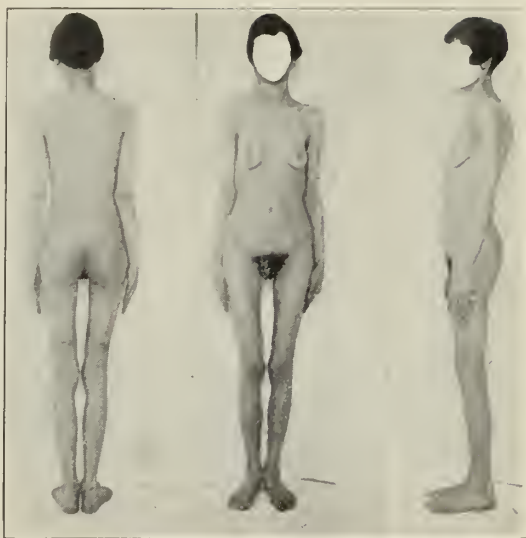


Fig. 6. Hypogonadism in girl aged twenty-two years. Late onset of menses; irregularity in beginning; amenorrhea past four years. Gastro-intestinal symptoms (functional) and migrainous headaches other chief complaints. Note overgrowth of long bones.

(15 minims) daily for eight days following the menses or time menses were expected to occur. This extract should not be given again until after the next menstrual period and subsequent treatments should depend upon the individual reaction, the goal being to establish normal menstruation. Estrogen and amniotin both produce a local reaction and are exceptionally irritating. The follicular hormone is also marketed for oral administration under the trade name progynon and as pessaries as amniotin pessaries. The last two named methods of treatment have not been used sufficiently to identify their real worth and until proven otherwise it would seem safe to state that the subcutaneous injections are desirable when possible.

To choose between whole ovarian extract, ovarian stroma, and corpus luteum (present product) is many times difficult and for the general practitioner the whole ovarian substance is deemed best. This may be given alone or in conjunction with the follicular hormone (estrogen or amniotin). Its usage may be continuous in doses of 1 to 2 c.c. (15 to 30 minims) every two or three days with no reference made to menstrual periods. It has been found to alleviate many of the constitutional symptoms of hypogonadism and the menopause.

#### THE SUPRARENALS (ADRENALS)

The suprarenal glands are made up of two distinct portions, cortex (interrenin bodies) and medulla (chromaffin tissue). These glands first gained recognition from Addison (1855)<sup>18</sup>





Fig. 7. Polyglandular disorder in girl aged 4 years. Thyroid, pituitary, thymus, and suprarenal glands involved. Note pubic hair and pronounced hair growth over face and body.

in his description of the disease that bears his name. In due time the profound physiologic effect of epinephrine, a substance extracted from the medulla, was demonstrated and until very recent years was erroneously considered the sole secretion of the adrenals. Tuberculosis of the suprarenals involving the medulla has been repeatedly found and held as the cause of death in Addison's disease. This went unquestioned until Stewart<sup>19</sup> began his investigations and found that the medulla of both suprarenals could be removed either by surgery or cautery in dogs without any effect whatever on the animal. They found however that removal of the entire glands was incompatible with life which led to the logical conclusion that the cortex is the important portion and not the medulla. The functions of the suprarenals have been evolved from the symptoms which developed following suprarenalectomy. As understood today their secretion is essential for the maintenance of muscle tonus and for the regulation of digestion, especially of fats.

The diagnosis of hyposuprarenalism is often difficult owing to the lack of more exacting knowledge of the functions of these glands and the close similarity of symptoms with other disease entities, especially hypothyroidism. Koehler<sup>20</sup> has described a group of cases in which the chief complaints were muscle weakness and those of nervous instability in which the basal metabolic rate was found well below normal. This group did not show any of the signs of hypothyroidism and did not respond to thyroid therapy to any appreciable extent. They did however respond quite satisfactorily to a cortical substance specially prepared by

him. This preparation is not on the commercial market today because of the instability of the product, though we may feel assured a satisfactory preparation will soon be obtainable.

Suprarenal cortex liquid has not been found to be of appreciable value nor have any of the suprarenal products given by mouth. The use of epinephrine in medicine and surgery is well understood for its effect chiefly upon the circulatory system, relieving the spasm in asthma, its effect on urticaria, angioneurotic edema, serum sickness, and anaphylactic shock. The usual dosage is 0.5 to 1 c.c. of the 1:1000 solution given subcutaneously. Such a dose may be repeated frequently at intervals of fifteen minutes. Applied locally it produces ischemia which greatly facilitates operative procedures.

#### PANCREAS

To enter into detailed discussion on the subject of diabetes mellitus is beyond the scope of this paper, yet it would be unjust to entirely omit mention of a gland in which the specific hormone has been isolated and so universally used. Insulin, the well known hormone of the pancreas, is essential in sufficient amounts and without interference of its action for the maintenance of normal blood sugar levels. When present in inadequate quantities or when its action is interfered with, the blood sugar rises and the well known condition of diabetes mellitus occurs. The principal symptoms of this disease are increased thirst and urinary output, increased food intake accompanied by loss of weight and weakness, and "persistent sugar in the urine." This last finding is the most significant. Only a lowered renal threshold or injury to the base of the brain involving the floor of the fourth ventricle are other conditions likely to cause persistent glycosuria. The glycosurias of hyperthyroidism and hyperpituitarism are believed due to an interference with insulin action within the body and correcting the hyperactivity in such cases usually results in return to normal pancreatic function.

Principles of treatment of diabetes mellitus which Joslin<sup>21</sup> employs and which are universally popular are diet restricted in carbohydrates, though ample quantity allowed to permit every day activity, and insulin in sufficient amounts to maintain normal blood sugar and sugar-free urine.

#### BIGLANDULAR AND MULTIGLANDULAR DISORDERS

Any single glandular disorder that has existed for any length of time is likely to cause a disorder of one or more other glands of

the endocrine system. In such instance signs of each glandular disorder are present and only treatment directed toward all existing disturbances will obtain best results.

## SUMMARY

1. The diagnosis of endocrine disorders can in most instances be made from history and physical examination. Special and X-ray examinations and laboratory tests are no more a necessity in the diagnosis and treatment of endocrine disorders than in the accurate diagnosis and observation of other systemic disturbances.

2. All pregnant women suspected of having or known to have hypothyroidism or who fail to show an increase in basal metabolic rate to plus 15 to plus 25 per cent after the fifth month of pregnancy should be given desiccated thyroid substance.

3. Differential diagnosis of endocrine disorders is comparatively easy with possibly one exception, that of hypothyroidism and hypoadrenalism. Fatigue many times is the outstanding symptom and in both instances the basal metabolic rate is lowered. Cases of hypoadrenalism show no clinical signs of hypothyroidism and fail to show the expected response to thyroid therapy.

4. The oral administration of glandular preparations with exception of thyroid substance has proven of little value, while the subcutaneous injection of parathyroid, pancreatic, pituitary, and gonadal extracts has been effective.

5. Biglandular and multiglandular disorders are likely to occur in endocrine disturbances of long standing. Diagnosis and treatment of such cases are advocated along principles laid down for each individual glandular disorder.

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## DISCUSSION

DR. G. WILSE ROBINSON, JR., Kansas City: I want to say a word about the undeveloped type of parathyroid deficiency. In my work on the behavior problem in children I see some who are hard to manage in the home and do not get along well in school. Timme, of New York, believes these are cases of mild hypothyroidism and treats them with parathyroid. He believes it possible to relieve the tenseness and help these children. I think that should be borne in mind when we do not know what to do with the child who will not go to school, who will not do this or that, and is practically unmanageable in the home. The blood calcium in these cases does not seem to be affected. Timme has reported some marvelous results by long treatment in these cases, and in two or three cases they have accomplished something by making these children better adjusted to their social life.

DR. D. L. SEXTON, in closing: As Dr. Robinson has said, nervous and restless children, where the behavior problem enters, are frequently improved by parathyroid extract. Adults, too, of the spastic type, spastic colitis and constipation, many times are relieved by small doses of parathyroid extract. A dosage of five to ten units can be given two or three times a week without danger. If the patient develops anorexia, nausea and vomiting, the dosage should be reduced as these are early signs of hypercalcemia.

THE TREATMENT OF CARCINOMA OF THE TONGUE\*<sup>1</sup>

ELLIS FISCHEL, M.D.

ST. LOUIS

From a purely therapeutic viewpoint, carcinoma of the tongue presents the most varied considerations. These are not only physical but also mental and social in character. A patient will more or less willingly sacrifice a portion of his stomach, a lip, even a nose or rectum if thereby his life can be saved; but to lose the tongue means to most individuals a state of social ostracism, or loss of ability to transact business affairs, which make the prospect of life under this condition so unattractive that when purely operative procedures, which mean crippled speech, are offered, they are accepted only with the greatest repugnance.

\* Read at the 73rd Annual Meeting of the Missouri State Medical Association, Hannibal, May 12-15, 1930.

<sup>1</sup> From the Surgical Service of Barnard Free Skin and Cancer Hospital.



Therefore, it behooves us to give careful attention to any method of treatment which promises less mutilation and hence less loss of the function of speech than purely operative procedures.

Yet all effective treatment of cancer of the tongue must essentially employ operative technic. No method of treatment of cancer, be it of the tongue or of any other region of the body, can change the pathology of the disease. All old as well as recent studies fail to disclose any effective means of treating cancer except its complete removal from the body or its total destruction *in situ*. Therefore, I wish to state most emphatically that cancer is a surgical disease and its treatment belongs primarily to the domain of surgery.

During the last 25 years 134 patients have entered the outpatient department of Barnard Free Skin and Cancer Hospital with the diagnosis of carcinoma of the tongue. Fifty-nine of these patients entered the hospital for treatment. It can be seen from Table 1 how unsuccessful this treatment has been, for only five per cent were alive and well for a period of five years following the inception of therapy. In my private work the results of treatment are very little better as the tables show.

Table 1. Carcinoma of the Tongue (The Barnard Free Skin and Cancer Hospital, 1906-1925).

	Number	Per Cent
1 Total number of cases treated.....	59	
2 Died from carcinoma as only factor.....	33	56
3 Died postoperative (hemorrhage and pneumonia) .....	12	20
4 Died from other causes.....	3	5
5 Unaccounted for after hospital discharge..	8	13
6 Living and well 5 years after beginning therapy .....	3	5
7 Wassermann positive.....	5	9
8 Number of admissions.....	134	
(a) Refused therapy.....	75	56

Table 2. Carcinoma of the Tongue (The Barnard Free Skin and Cancer Hospital, 1906-1925).

	No.	P. O. H.	L & W	A. L.
Excision of part or whole of tongue .....	8			13 Months
Radium to primary lesion..	6		1	13 Months
Excision of part or whole of tongue plus radium...	4	1		3 Months
Excision of part or whole of tongue plus neck dissection .....	15	11	1	5½ Months
Radium to primary lesion plus neck dissection ....	3		1	2 Years
Excision of part or whole of tongue plus radium plus neck dissection....	8			1 Year

Legend  
P. O. H. = postoperative hemorrhage.  
L & W = living and well after 5 years.  
A. L. = average length of life.

Table 4. Carcinoma of the Tongue (Author's Practice, 1919-1925).

	No.	P. O. H.	L & W	A. L.
Radium to primary lesion.....	8	1	1	14 months
Excision of part or whole of tongue plus radium.....	3		1	3 years, 11 months
Excision of part or whole of tongue plus neck dissection.....	1	1		2 years, 3 months
Radium to primary lesion plus neck dissection.....	2	1	1	3 years, 8 months
Excision of part or whole of tongue plus radium plus neck dissection ..	2			2 years, 8 months

Legend  
P. O. H. = postoperative hemorrhage.  
L & W = living and well after 5 years.  
A. L. = average length of life.

Table 3. Carcinoma of the Tongue (Author's Practice, 1919-1925).

	Number	Per Cent
1 Total number of cases treated.....	16	
2 Died from carcinoma as only factor.....	6	38
3 Died postoperative (hemorrhage and pneumonia) .....	3	19
4 Died from other causes.....	3	19
5 Unaccounted for after one year.....	1	6
6 Living and well 5 years or more after beginning therapy .....	3	19
7 Wassermann positive .....	2	12

These figures contrast very badly with those obtained by Butlin<sup>1</sup> who gives 20 per cent cures, and those of Blair,<sup>2</sup> 27 per cent, and Quick,<sup>3</sup> 29 per cent. A glance at the table will show that we have not been slow to employ every known accepted method of therapy. The technic employed is certainly as good as the average and cannot be blamed for the low percentage of cures. In a free service the cases are not selected in any sense of the word and the percentage of advanced cases accepted for treatment is necessarily high. In private practice the sociological barrier which prevents the patient from acceptance of correct treatment often leads to compromise measures which can never attain the same results as correctly planned initial procedures thoroughly carried through.

There are two distinct problems in the treatment of cancer of the tongue. The first and more important is the complete eradication of the disease in the affected organ. The second is the eradication of the disease after it has spread to the neighboring lymphatic glands. Not every cancer of the tongue will spread to the lymph glands but the percentage of such metastasis is so high that each and every case must be accepted for treatment with the idea in mind that the tributary lymph glands are already affected.

This article will not discuss preventive treatment, the taking of biopsy specimens, or the handling of the precancerous lesion. The diagnosis is supposed to have been made, the patient is prepared to accept whatever treatment is offered. As mentioned before, the problem of the primary lesion must be considered separately from that of metastasis. We will consider the primary lesion first. The indicated therapy varies somewhat with the location of the lesion and its gross appearance. The tongue may be divided into anterior, middle and posterior thirds and the septum fairly well

separates the right from the left half in the anterior two-thirds. Then we have the further division, top and bottom,—the top or dorsum presenting distinct problems from the bottom (which includes the frenum) because lesions of the under surface of the tongue usually also involve the floor of the mouth.

Until the discovery of radium, the only effective method of treating carcinoma of the tongue was by rapid surgical removal of the growth with a liberal amount of apparently normal tongue tissue surrounding it. Radium is a powerful destructive agent and its flexibility in use adapts it very well to the requirements of destruction of cancer deeply buried in the tissues. At first it was used as a surface application. Later, gold, platinum and steel alloy needles containing radium element were (and still are) employed. With the development of better apparatus for collecting and concentrating radium emanations, tiny "seeds" of gold or platinum which contained emanations in any desired quantity could be buried in and about the lesion, to give an even distribution of radiation throughout the tissues. The advantages of this method are plainly apparent. When effective, the maximum amount of normal tissue is conserved and the resultant scar left from the destruction of the malignant growth is soft and pliable so that the normal functions of the tongue are little interfered with.

Surgical diathermy, which includes electrocoagulation and dessication, is a method of treatment which is directly destructive in effect and is comparable in every way to other methods of strictly surgical removal. The method has its strong advocates and there is nothing to be said against it when properly employed. X-ray is certainly without value in the treatment of the primary lesion.

Lesions of the tip of the tongue are almost invariably of the button type and can be successfully removed by a comparatively simple clean excision which leaves a useful tongue for chewing and for speech. The method recommended is to excise the growth with a V incision beginning each extremity of the V at least two centimeters from the margin of the growth and with the apex in the septum. The full thickness of the tongue is included. It is a simple procedure to close the wound by bringing the two cut edges together with three or four deep sutures of silkworm-gut supplemented by interrupted superficial sutures of silk to give good approximation of the mucous membrane. The operation is easily performed under infiltration anesthesia. Hemorrhage is rarely severe enough to require the ligation of individual blood vessels.

Lesions of the margin of the tongue in the anterior third are treated in a somewhat similar manner, only here the incision is L shaped. The vertical limb of the L is carried straight back from the tip in the line of the median septum until its posterior end is again at least two centimeters beyond the level of the posterior border of the growth. Here the horizontal limb of the incision begins and is carried straight out to the margin. Again the full thickness of the tongue is included in the part to be excised. Closure is obtained by swinging the tip of the tongue around and suturing the two raw surfaces together with interrupted silkworm-gut and silk sutures for the mucous membrane. Large vessels which require individual ligation are invariably encountered.

Lesions in all other locations in the tongue, i. e., the posterior two-thirds on margins or dorsum and all lesions in the midline, are treated primarily with radium emanations. The method I personally prefer is to use gold "seeds" approximately .3 millimeters in diameter, each seed containing one and one-half to two millicuries of radon. The number of seeds employed varies according to the surface size and estimated volume of the infiltrated tissue. The seeds are buried at least half a centimeter beneath the surface of the mucous membrane, are placed from one to one and one-half centimeters from each other, and must completely surround the lesion so that it is blocked off from the supposedly normal tissue. In the actual operation of the insertion of the seeds, the sense of touch is much more essential to success than is vision. In many lesions of the middle third and in all lesions of the posterior thirds or base, the most satisfactory method for the insertion of the seeds is to palpate the lesion with the forefinger of the left hand in the mouth and to insert the needles bearing the seeds through the floor of the mouth, first making small stab incisions in the skin between the hyoid bone and the lower border of the mandible.

In ten years' experience with the use of radium in the form of element in capsules and needles, and eight years' experience in the use of "seeds," my present belief is that the accurate and effective placing of radium in the tongue is technically a much more difficult procedure than is any surgical operation on the tongue. Also, the use of radium is not without risk. There is considerable trauma connected with the insertion of the seeds or of needles. Pneumonia, which is directly due to the inability of the patient to expel mouth secretions immediately following radium treatment, is a serious complication and may prove



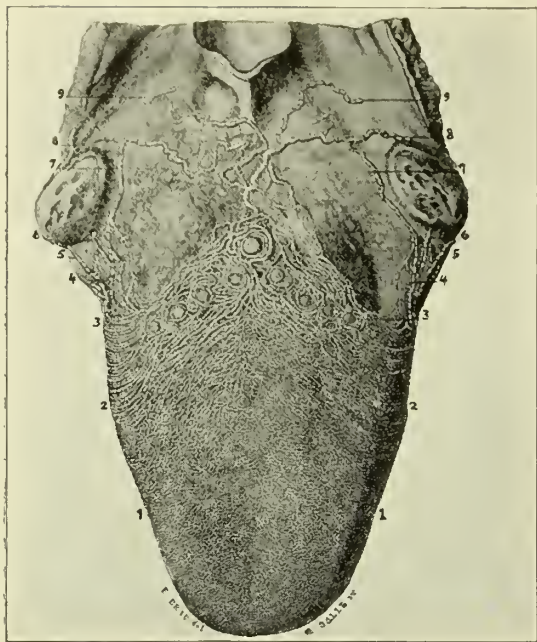


Fig. 1. Lymphatic vessels of dorsal surface of tongue. (After Sappey.)

fatal. Secondary hemorrhage may occur from sloughing following even the insertion of gold seeds if the seeds are placed too close together. The more one learns of the dangers of radium the better can the patient be protected. Yet great as the dangers are they are not to be compared with the immediate operative mortality of from 20 to 25 per cent which follows direct surgical attack.

Believing that surgical diathermy might lessen the operative mortality I have given it a reasonable trial. While I found that the immediate risk from hemorrhage in partial excision of the tongue by this method was diminished, secondary hemorrhages were more frequent. In the large radical amputations it has no advantages over the cutting cautery since all these operations are immediately preceded by preliminary ligation of both lingual arteries at the level of the hyoid bone. Personally, I prefer the electrically-heated cutting cautery to all other instruments for all extensive operations for carcinoma in the mouth.

There is one more point about the use of radium which I wish to emphasize. Where radium cures a cancer of the tongue, the resultant scar is so soft and pliable that there is seldom any disability. When radium fails to cure cancer of the tongue the patient should not be radiated a second time, provided an operation offers a reasonable chance to eradicate the disease. If a patient is kept under as close observation as the seriousness of the disease warrants, the failure of treatment by ra-

diation is usually apparent at the end of three months' time. Then, if radical operation must be performed, the patient stands the operation much better than the average patient who has not had radium treatment.

What is meant by radical operation for cancer of the tongue? Removal of either half from tip to base may be considered radical. This operation is seldom indicated. Few cancers which require the removal of half the tongue will be cured unless the other half be removed as well. From the standpoint of function, half the tongue is worse than none at all. The remaining half rotates 90 degrees and its raw mesial surface firmly unites to the raw surface of the floor of the mouth, becomes fixed and is useless either for articulation or for mastication. The operation, therefore, is limited to cases which are exceptionally bad risks, or to cases which cannot be controlled and absolutely will not permit removal of the entire organ. In a case which has been previously radiated by radon in seeds, removal of the tongue through the mouth can be undertaken without special preliminary precautions. Following the amputation these patients can talk and swallow liquids in an amazingly short time. Tube feeding (catheter or duodenal

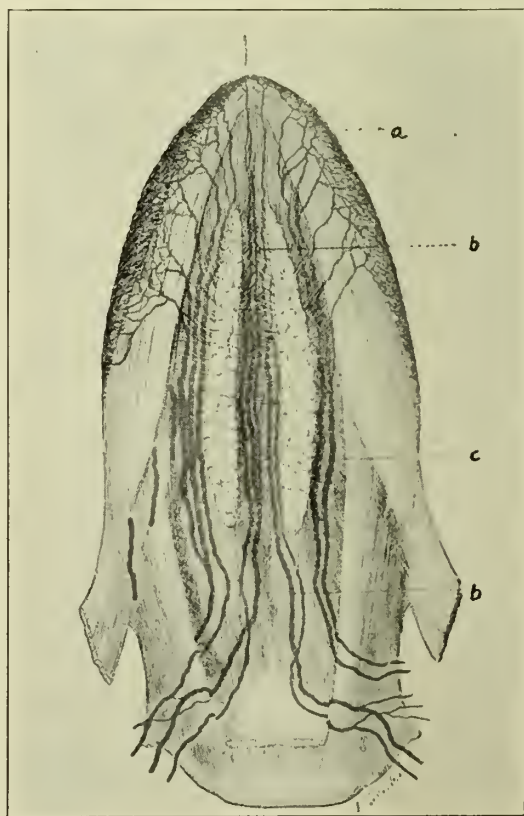


Fig. 2. Lymphatics of tongue, inferior surface (Poirier).

tube through the nose) can be discontinued after two or three days and I have known them to enunciate distinctly upon waking from the anesthetic.

The radical operation for advanced carcinoma of the tongue as advocated by Blair<sup>4</sup> is reserved for those cases in which the floor of the mouth is also involved. This operation reams out all the tissues contained beneath the platysma myoides muscle, the mandible above, the hyoid bone below, and the posterior bellies of the digastric muscles laterally. It is a formidable operation but, if the individual steps of the operation are carefully followed, the immediate risk from shock or hemorrhage is slight. The great dangers are from post-operative pneumonia, from aspirated secretions and from secondary hemorrhage.

Now let us turn to a consideration of the proper handling of metastases from tongue cancer.

A study of the lymphatic vessels which ramify upon the surface and course through the substance of the tongue gives at once the reason why it is so difficult to eradicate cancer once it has established itself in this organ. Figure 1 shows that, whereas on the dorsum in the anterior third the septum is a more or less certain barrier between the two halves, in the posterior two-thirds there is free communication not only over the entire surface but also between the tongue and each tonsil through large direct lymph channels. Figure

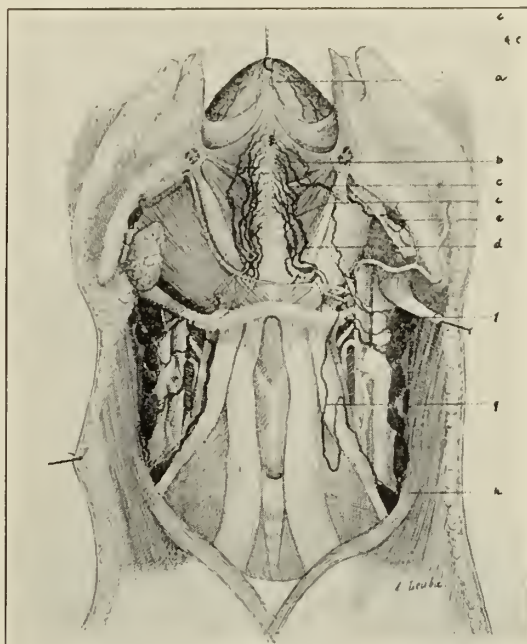


Fig. 4. Lymphatics of the tongue, anterior view (Poirier). The inferior maxilla has been sawn through in the middle line and the two halves drawn aside. The two central trunks may be seen running between the two geniohyoglossi which have been removed. a, apical trunk; b, inconstant trunk ending in a submaxillary gland; c, c, central trunks; d, intralingual glandular nodule; e, submaxillary gland; f, principal gland; g, central trunk forming a loop in the suprahyoid region; h, supra-omohyoid lymph gland.

2 shows the under surface. Here the lymph channels are not so tortuous as in the dorsum but they are quite numerous and exceptionally large. Figure 3 shows in cross section the usual direct routes from the tongue to the lymphatic glands of the neck. This gives us the clew to correctly planned surgical attack. Lesions located on the tip of the tongue are prone to show first metastases to the submental and submaxillary group of lymphatics. Lesions of the margin in the anterior and middle thirds first attack the lymph glands of the submaxillary and upper deep jugular chain, especially the jugulodigastric gland which lies along the jugular vein at the level of the posterior belly of the digastric muscle. Lesions of the posterior third show their metastases deep beneath the upper third of the sternomastoid muscle. But the main lymphatic trunks anastomose so freely that these main paths of dissemination cannot absolutely be relied upon. Perhaps the most important lymph gland in the neck is the supra-omohyoid. This gland (Figures 3 and 4) not only receives afferent lymph vessels from all the preceding groups but direct channels from the tip, the margins and body of the tongue have been traced to this gland.

By reason of the above considerations the futility of partial resection of lymph channels

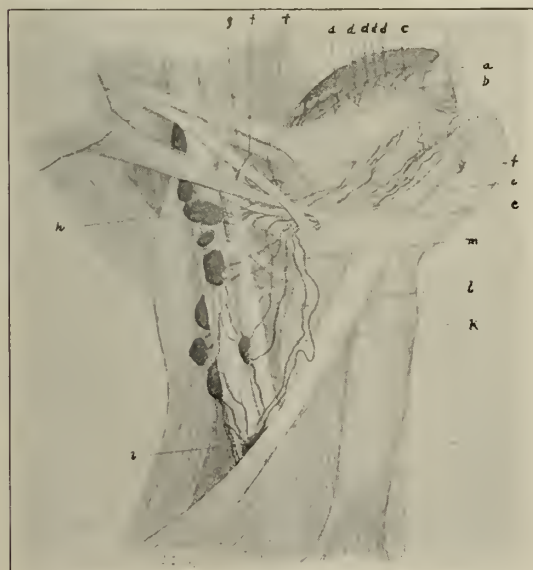


Fig. 3. Lymphatics of tongue, anterior view (Poirier). a, b, apical trunks; c, marginal trunks; d, marginal collecting trunks running with the hypoglossal nerve over the external surface of hyoglossus; e, interrupting nodule in the course of these vessels; f, g, basal trunks; h, principal gland; i, supra-omohyoid gland; j, submental gland; k, central trunk ending in the supra-omohyoid gland; l, interrupting nodule; m, marginal trunk, ending in the supra-omohyoid gland.



must be apparent and although the impossibility to remove all the lymph glands of the neck is admitted, yet block dissections planned to remove the various groups of lymphatics *en masse* offer reasonable hope of success.

It is outside the scope of this article to describe in detail the technic of the various operations upon the lymphatic system of the neck. The general plan is to start at the periphery and to converge upon the group of glands which are most likely to be involved. The two sides of the neck are never removed at one operation, but the importance of operating upon both sides is always emphasized. The resection begins at the clavicle and ends at the base of the skull, the lower border of the mandible and the floor of the mouth. It extends from the midline anteriorly to the anterior border of the trapezius muscle posteriorly; the sternomastoid muscle and deep jugular vein are almost always included in the resected tissue thus sacrificing the spinal accessory nerve. Both jugular veins can be removed with impunity but the common and internal carotid arteries, the pneumogastric and hypoglossal nerves must not be damaged. The deformity which results from this extensive procedure is not as great as might be expected and patients are seldom incapacitated from resuming their previous occupations. There is practically no operative mortality from shock; even debilitated patients stand the operation well. The greatest risk is postoperative pneumonia and secondary hemorrhage.

When should the neck dissection be performed? Since the lymph glands must be considered as a more or less effective defense against the systemic spread of carcinoma, it is not rational to remove them before the primary lesion of the tongue is healed. My procedure is to treat the lesion of the tongue first, either by excision or radon. If the lymph nodes are not palpable, I wait three months to observe the effect of the treatment of the primary lesion. If the simpler treatment of the tongue lesion has not been effective, the entire tongue is removed through the mouth. If the primary lesion has healed, the neck dissection on the involved side is performed. Another three months are allowed to elapse before the resection of the other side is performed. If lymph glands are palpable when the patient first presents himself for treatment, the elapsed time between steps is shortened to six weeks. In some cases the primary lesion is small and insignificant compared to the extensive metastasis. In these cases the extensively involved gland group is resected at the same time as the primary lesion is treated.

I do not recommend the use of the X-ray either before or after operation. There is no conclusive evidence that the use of the X-ray in metastatic squamous-cell carcinoma of the mouth has limited or prevented metastasis and in my experience it has been useless either to control pain or to prevent extension from known metastatic nodes. On the other hand, radon implanted directly into large, frankly inoperable metastases has caused such marked retrogression and ameliorization of pain that its use as a palliative procedure can be strongly recommended.

I have purposely omitted a discussion of the prevention of carcinoma of the tongue, of a consideration of coexisting syphilis and of pre-operative oral hygiene. My purpose in presenting this plan of treatment is to emphasize the fact that cancer of the tongue must be attacked with a full understanding of the possibilities involved for its progressive invasion of normal tissues and to place before you a plan of treatment which if skillfully and conscientiously carried out will effect complete eradication of the disease in an encouraging percentage of cases.

400 Metropolitan Building.

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#### FITTING THE MENU TO ALL THE FAMILY

The question that continually confronts us is not only what shall we eat, but more and more what foods or combination of foods will give the best nutrition.

Real skill is needed to fit a menu to all the family, observes Mrs. Louise Peet, of the home economics department of Iowa State College, in the September *Hygeia*, yet the requirements of various members differ more in amount than in kind.

Twenty years ago nutritionists emphasized proteins, fats and carbohydrates. Today there is a growing appreciation of the value of water and minerals and a new knowledge of the vitamins.

Protein must constitute about 10 per cent of the diet. It is found in meats, in milk, cheese, eggs, cereals, nuts and legumes. Starches and carbohydrates are the best sources of energy. These come largely from bread and sweets. Fats are valuable for flavor and give the diet its staying qualities.

We look primarily to milk, vegetables and fruits for our supply of minerals and vitamins. A glass of milk furnishes about a third of each day's requirement for calcium. Green vegetables are sources of iron. Vitamin A comes from milk, butter, carrots, tomatoes and other yellow and green vegetables; vitamin B from green vegetables and whole wheat cereals. Oranges, grapefruit, cabbage and tomatoes furnish vitamin C, and the ultraviolet rays of sunshine activate vitamin D.

## WASHINGTON UNIVERSITY CLINICS

### CARCINOMA OF THE THYROID WITH METASTASIS TO THE SKULL

HARRY WILKINS, M.D.

From the Department of Neurological Surgery,  
Washington University School of Medicine.

Presented at the Friday Morning Clinical Conference, Barnes Hospital.

Simpson<sup>1</sup> states that carcinoma of the thyroid gland occurs in four per cent of patients who have goiter without symptoms of exophthalmos. Over sixty per cent of his cases were unsuspected clinically. Metastasis from carcinoma of the thyroid is relatively frequent. Kraus<sup>2</sup> reports the incidence as 90 per cent, a figure which may be partially explained by the fact that the secondary growth frequently directs attention to the primary lesion.

The secondary growth shows a predilection for certain organs or structures and resembles malignant disease of the prostate and breast in that the secondary growth frequently invades the bones. In 238 cases reported by Ehrhardt<sup>3</sup> the metastatic lesions were located as follows: Lung 129, bones 66, liver 36, kidneys 20, pleura 16, brain 12, other organs 13. Simpson found the lung involved in 48 per cent of his cases and the bones in 29 per cent. Those lesions occurring in the bone were distributed as follows: Skull 30, vertebrae 25, pelvis 11, sternum 9, femur 9. The changes in bone as demonstrated by roentgen ray are often interpreted as due to sarcoma. They may appear either as an osteoclastic or an osteoplastic lesion. The secondary growth as a rule is a soft, compressible mass with a pulsation synchronous with cardiac systole. This may be either visible or palpable. A bruit is frequently present.

On microscopic examination the thyroid gland itself may show only the changes of a colloid goiter unless careful search be made for the malignant lesions. These are the lesions which are unsuspected clinically. The secondary growth tends to reproduce tissue of the type seen in the normal thyroid gland.

Cachexia, a very frequent symptom of carcinoma arising in other organs, is relatively uncommon. Only about 50 per cent of these cases have symptoms of hyperthyroidism. Removal of the primary lesion furthermore rarely produces changes in these symptoms when they are present but removal of the secondary growth may give rise to symptoms of myxedema.

The prognosis is uniformly bad; all cases have terminated in death in from one to four years. In Simpson's<sup>5</sup> cases, none lived more than one and one-half years.

The present case is reported because of the unusual size of the metastasis and the changes

in the roentgen ray plate. After one and one-half years the bone defect was filled with new bone.

#### REPORT OF CASE

E. C., a colored woman, aged 63, entered Barnes Hospital October 27, 1928, with complaint of a painful mass growing in the left parietal region. For several years she had had a goiter. In January there was a sudden increase in the size of the thyroid gland which the patient "stopped by rubbing it with vinegar and salt." She first noted the mass in her head in February, 1928. Severe frontal headaches occurred at the time of onset and three months later her memory became impaired. For one week the patient had been unable to walk because of generalized weakness.

Several members of her family were said to have had goiter.

The physical examination revealed a slightly obese colored woman whose head was asymmetrical due to a mass in the left parietal region. This mass was



Fig. 1. Prominence in left parietal region present on first admission, October, 1928.

10 cm. in diameter, was soft and compressible. A definite thrill could be detected over its surface. There was slight symmetrical expansion with each heart beat and a bruit could be heard over the entire mass. Compression of the temporal, frontal and occipital arteries failed to stop the pulsation. Beneath the mass a bony defect of 6 to 8 cm. in diameter could be outlined.

The thyroid gland was moderately enlarged, nodular and asymmetrical, the right side being more prominent. The patient had no evidence of sensory or motor cortical involvement. Her speech was normal and there were no positive neurological signs. The





Fig. 2. Bone defect due to erosion by the tumor, October, 1928. Note enlargement of diploic spaces bordering lesion.

roentgen ray plate showed a circular defect in the left parietal bone about 6 cm. in diameter which Dr. Sherwood Moore reported to be a metastatic lesion. An increase in the diploic spaces was seen bordering the lesion. The basal metabolic rate was reported to be +9 per cent. Because of the expansile pulsation synchronous with cardiac systole, the presence of a bruit and history of onset, a tentative diagnosis of arteriovenous aneurysm was made. On November 5, 1928, Dr. Ernest Sachs explored the mass. On turning back a scalp flap, profuse hemorrhage was encountered everywhere. The mass was found to be inoperable and a section was removed for study. The wound was closed and the patient made an uneventful recovery. She left the hospital a few days later.

Histological study of the specimen removed at operation showed glandular tissue not unlike fetal adenoma of the thyroid. A tendency toward proliferation of the cells could be detected in some areas but for the most part the acini were well formed and many contained colloid material.



Fig. 3. Tissue removed from lesion at biopsy. The general tendency toward formation of normal acini may be noted. Colloid material is present in abundance.

The patient left the hospital and was not heard of again until April 4, 1930 (fifteen and one-half months after discharge), when she returned to the hospital because of weakness and partial loss of function of arms and legs which had prevented her walking or feeding herself for three months. These symptoms



Fig. 4.



Fig. 5

Figs. 4 and 5. The mass as it appeared in April, 1930. Marked dilatation of superficial veins and tremendous increase in size of the mass are the outstanding features.

had followed a fall in which she was said to have injured her back.

The tumor mass which had barely been visible at the first admission had grown enormously and was fully as large as a grapefruit.

The vessels over the entire scalp had become markedly dilated and expansile pulsation had increased. The consistency had changed somewhat in that some areas were firm while others gave the impression of large venous lakes or cystic areas. A palpable thrill was present as before and the bruit could be heard over the entire head. Slight movement caused much pain in her neck and in addition to general weakness there was some disturbance in coordinate movements. Motion was limited in the cervical spine. The neurological examination showed some blurring of the disc margins, greater on the left than on the right side, and beginning tortuosity of the veins in the left fundus. The abdominal reflexes were absent. No sensory disturbance or definite motor involvement could be made out, aside from generalized weakness. There was no clinical evidence of other metastatic lesions with the possible exception of pain and limitation of motion in the cervical spine. Attempts to obtain a basal rate were unsuccessful due to lack of cooperation.

The roentgen ray plate of the skull showed very marked changes. The defect seen on the previous admission could not be demonstrated and there was considerable bone production about the borders of the lesion with separation of the outer and inner table of the

parietal bone. Some arborization of calcified material could be seen in the soft tissues.

In the lateral views of the cervical spine the spinous process of the second cervical vertebra was found destroyed by a metastatic growth.

The patient's general strength was remarkable. She was discharged after a stay of a few days in the hospital.

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#### DON'T LET DEAF CHILD DEVELOP MANNERISMS

The great tragedy of deafness is that a person gets into a habit of protecting himself against his defect and develops disfiguring mannerisms, Dr. Thurman B. Rice observes in the September issue of *Hygeia*.

The deaf person raises his voice to a high pitch; he holds his hand to his ear; he crowds into the face of those speaking to him; he raises a petulant "Eh?" at the most provoking times. What is more pathetic, he draws into himself and becomes cranky or eccentric; he is suspicious and tyrannical or overly self-conscious, fearing to express himself lest he get things wrong.

Parents of a child with poor hearing have a heavy responsibility. Throat infections, adenoids, middle ear infections, running ears, chronic mastoid infections and related conditions call for the best available medical attention. In case a child has already become crippled in his hearing the parents' problem is different. Clear, sharp enunciation must be cultivated in the home and the child must be taught lip-reading. He should be seated to the best advantage at home and at school, but his attention should not be called to his defect too often. With careful, intelligent treatment parents may help the hard-of-hearing child to grow into a normal life and avoid the unfortunate deviations in character development.

#### DON'T TELL SICK PERSON DETAILS OF ILLNESS

The dangers of knowing too much about one's own illness are pointed out in an article by Dr. Richard E. Stifel in the September issue of *Hygeia*.

It is unwise, for instance, for a sick person to know that he is getting morphine, Dr. Stifel thinks. He may like the sensation it produces and seek more of it. It does not help a person with high or low blood pressure to take his own blood pressure; he may harm himself and he may actually wreck the serenity of his family.

Dr. Stifel tells a story in point of a young man who had heard that the pulse rate should always be 72. When he found his was only 62, he went from one doctor to another trying to find something wrong with his heart. He was always disappointed, for 62 was simply the normal pulse rate for him.



Fig. 6. Roentgen ray of skull April, 1930. The defect noted in figure 2 has been obliterated by production of new bone.



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NOVEMBER, 1930

## EDITORIALS

### FOUR-YEAR COURSE IN MEDICINE IS REESTABLISHED AT THE UNIVERSITY OF MISSOURI

President Walter Williams, of the University of Missouri, has announced that the Board of Curators on October 4 authorized the reestablishment of the clinical years of medicine. This action followed recommendations by the Missouri State Medical Association, the faculty of the school of medicine and others interested in the growth of the State University.

For the last twenty-one years the school of medicine has been a two-year school, offering only the courses preliminary to the clinical work of medical students. The university had granted the degree of medicine until 1909 and trained many of the doctors at present practicing in Missouri.

Medical education under the direction of the university was established in 1845 at the Missouri Medical College in St. Louis. At that time parts of two years were all that was considered necessary for the training of a physician. During the Civil War and for a few years following, the medical school was discontinued entirely. In 1872 medical teaching was begun again, this time in Columbia. In 1891, due to the rapid growth in medical knowledge, the course was extended to three years and in 1899 to four years of study.

In the early years of 1900 there were a great many more medical schools than at present. Many of these schools were private institutions operated in some cases as financial investments and without university connection. Following a thorough survey of medical schools by the American Medical Association, radical changes involving the standardization of medical education were made. Various schools were ranked according to their faculties and material equipment and definite pressure was made to

eliminate the poor schools. In 1909 the Board of Curators adopted a resolution discontinuing the two years of clinical work because of the cost and because of the lack of clinical material for teaching purposes. Since that time the rapid growth of Columbia, due largely to its central location and the increased importance of motor transportation with the development of good roads, it now seems possible to resume the teaching of clinical medicine at the university thus enabling the youth of Missouri who desire to enter the medical profession to complete their medical education at home.

The school of medicine at the State University although a two-year school has established for itself a name for both teaching and research in the fundamental medical sciences. It has received a Class A rating by the American Medical Association and since it is intimately connected with the university there is little question but that the school will retain its Class A rating through the formative period of expansion.

The present plan calls for cooperation between the University Hospitals and the Boone County Hospital at Columbia as the primary teaching units. With the outpatient clinic recently established by the University Hospitals and possibly other affiliations with nearby hospitals there should be sufficient clinical material for the proper teaching of these subjects to small classes.

The faculty of the school of medicine approved the project unanimously. In submitting its action to the president the following reasons were given:

1. Missouri residents seeking a medical education should be offered the same facilities at the State University for their vocational training as are now afforded those entering the professions of education, engineering, law, mining, farming, journalism or business and public administration.

2. There is an increasing difficulty in placing our sophomore students in four-year schools for the completion of their medical education.

3. A large percentage of our students do not locate in Missouri to practice medicine because many must finish their courses in schools in other states and often are induced to locate in practice in other states than Missouri.

4. The school of medicine is well situated to train practitioners of medicine at a low cost to the student who in all likelihood will remain in the state to practice medicine.

5. The Missouri State Medical Association has several times passed resolutions to the effect that it is desirable that the clinical years be established at the State University.

The principal points of the plan for reestablishing the four-year course are:

1. That beginning in September, 1930, a free clinic be established at the University Hospitals in all departments necessary for teaching clinical medicine and surgery.

2. That affiliation be undertaken with Boone County Hospital so that it may also be used as a teaching unit.

3. In September, 1931, a portion of the present sophomore class, not to exceed such number as the clinical facilities will accommodate, be admitted to a new third year curriculum in the medical school. That in the fall of 1932 a senior curriculum be inaugurated. Additional faculty appointments should be made as required.

4. Beginning in 1933 the degree of Doctor of Medicine be granted to those students satisfactorily completing the medical curriculum.

The Missouri Survey Commission's report includes a plan for expansion to the four-year course at the medical school which involves the expenditure of a large sum over a ten-year period. The present action of the Board of Curators, however, for the time being at least, provides for a beginning with a less ambitious program. It assumes a confidence in as rapid growth as state and university finances will permit.

We felicitate President Williams and the Board of Curators on their decision to place the medical school upon the same basis that is enjoyed by all the schools in the university which confer degrees in other professions. The Missouri State Medical Association will undoubtedly voice its approval of the action in an appropriate manner when the opportunity presents itself for doing so. In the meantime we believe that President Williams, the Board of Curators, and the faculty of medicine may proceed with their plans for the clinical years and be assured of the unanimous support of our Association.

#### PHYSICIANS IN THE STATE SENATE

The importance of having a member of our Association elected to the State Senate is well recognized by all the members and we have been fortunate in being represented in the Senate by members of our Association who commanded the respect and confidence of other members of the Senate. For several terms the late Dr. W. S. Allee, of Olean, filled this important post and distinguished himself as a statesman with broad vision and sympathetic understanding of the needs of the state not only in protecting the health of the people and the rights of physicians but also in guarding the welfare of the state in fields outside the

medical profession. Dr. Allee died in 1916 while still serving as senator. The late Dr. John S. Wallace, of Brunswick, served a term and a half and more recently Dr. Guy L. Mitchell, of Branson, was senator from his district for two terms.

There are, however, two outstanding members of our Association who are seeking election to the State Senate from their districts this year, Dr. Charles H. Wallace, of St. Joseph, and Dr. William H. Breuer, of St. James. Dr. Wallace has had a very distinguished career in medicine, having established himself as an outstanding surgeon in his section of the state and as a man who has taken a deep interest in civic affairs in his community. He was president of the Missouri State Medical Association in 1906-1907 and was a member of the House of Representatives in the 54th and 55th General Assemblies where he served on numerous important committees. Dr. Wallace is a candidate for senator on the Republican ticket from the second district, which comprises the County of Buchanan.

Dr. William H. Breuer, St. James, the other candidate for State Senator belonging to our Association, is also an outstanding member of our organization. Practically from the time that he received his medical diploma from the Beaumont Hospital Medical College in St. Louis in 1898, he has been actively identified with the work of the Missouri State Medical Association. He has always practiced at St. James. He has served on numerous committees of our Association, has been councilor of his district for many years and was president in 1926-1927. His influence on questions affecting the welfare of the people whether of a medical nature or nonmedical extends far beyond the borders of his home county and district. He is a candidate on the Republican ticket for senator from the twenty-fourth district, which comprises the counties of Phelps, Crawford, Washington, Dent, Iron and Reynolds.

The members of our Association have an opportunity of sending to the State Senate two physicians who will fearlessly and courageously protect the interest of the medical profession, safeguard the health of the people, and intelligently study and act upon propositions of a nonmedical nature that arise in the Senate.

#### THE CLINICAL CONFERENCE AT KANSAS CITY

Physicians and surgeons from twenty-one states were enrolled at Kansas City in the eighth annual fall clinical conference of the Kansas City Southwest Clinical Society, October 6 to 10. A postgraduate course was given



on October 8, 9, and 10 from 9 to 12 in the mornings under the chairmanship of Dr. John L. Myers. Courses were given in eight specialties and also in general medicine and general surgery. Dr. Rex L. Diveley was director of the clinics and Dr. J. G. Montgomery was general chairman of the committee which scheduled the daily operative programs and demonstrations at ten hospitals in Greater Kansas City.

The conference opened with a public meeting Monday evening, October 6. Dr. Buford G. Hamilton, Kansas City, president of the society, spoke on "The Kansas City Southwest Clinical Society's Viewpoint of the Physician and the Laity." He reviewed the history of the organization and emphasized its purpose of promoting the educational advantages of the clinical material in Greater Kansas City so that the physicians of the Southwest might profit. Chancellor E. H. Lindley, University of Kansas, spoke on "The Layman's View of the Physician," and Dr. Palmer Findley, Omaha, spoke on "The Physician's Viewpoint of the Laity."

Dr. Conrad Berens, New York, spoke on the importance of examining the eyes for conditions that would indicate pathological processes in other parts of the body; Dr. John F. Barnhill, Indianapolis, stressed colds as a malady deserving more attention; and Dr. L. G. Rowntree, Rochester, Minnesota, urged the organization to form a "Heart Section" which would concern itself with the care of heart patients, particularly along the line of providing light work that would make them self-supporting.

Dr. Rex L. Diveley, Kansas City, discussed the status of infantile paralysis. Infant mortality and prenatal care of the mother were discussed by Dr. Fred L. Adair, Minneapolis; Dr. Rudolph W. Holmes, Chicago; Dr. Jennings C. Litzenberg, Minneapolis; and Dr. Percy W. Toombs, Memphis. Dr. Fred J. Taussig, St. Louis, presented a paper on "Breech Presentation," and Dr. Grandison D. Royston, St. Louis, spoke on "Postnatal Care."

A six-reel Fox movietone film on laparotrachelotomy was demonstrated by Dr. M. Edward Davis, professor of gynecology at the University of Chicago. The film showed Dr. J. B. DeLee, of the Chicago Lying-In Hospital, performing and explaining a low cervical cesarean section.

Among others who spoke in the postgraduate course were Dr. R. C. Coffey, Portland; Dr. Jabez N. Jackson, Kansas City; Dr. Allen B. Kanavel, Chicago; Dr. Ralph H. Major, Kansas City; Dr. Ralph C. Matson, Portland; Dr. Dean Lewis, Baltimore; and Dr. T. H. Weisenburg, Philadelphia. In addition to

taking part in the postgraduate course the guests also contributed papers. Dr. R. C. Coffey presented a paper on "Special Problems Involving the Treatment of Cancer of the Rectum and Rectosigmoid." Dr. Ralph C. Matson spoke on "Surgical Treatment of Pulmonary Tuberculosis," and Dr. Dean Lewis on "Diseases of the Spleen." Dr. T. H. Weisenburg presented a paper on "Treatment of the Psychoneuroses," and Dr. Allen B. Kanavel on "Congenital Deformities of the Hand."

The society held a joint meeting with the Central Association of Obstetricians and Gynecologists, October 9.

Round table luncheons were held at the Hotel President each day. Entertainments included a dinner given by the Kansas City Society of Ophthalmology and Oto-Laryngology for visiting specialists in that field. All golf courses in the city were open to visiting physicians and golf trophies were presented. Dr. G. Wilse Robinson was chairman of the golf committee. Mr. A. B. McDonald, special correspondent of the Kansas City *Star* talked on "Quackery in Medicine" at a get-together smoker. Various alumni dinners were held followed by a dance on the roof garden of the Hotel President Wednesday evening.

## NEWS NOTES

Dr. J. E. Jennings, St. Louis, was elected president of the Frisco System Medical Association at the annual meeting held at Springfield, Mo., October 11. Dr. Robert Vinyard, St. Louis, was elected secretary-treasurer and Dr. R. M. James, Joplin, one of the vice presidents.

The corner stone of the first unit of a \$200,000 building for the Mothers' and Babies' Home, Ferguson, was laid October 14. The home was established in 1899 and has been housed in frame buildings. Funds for the erection of the new building have been contributed voluntarily by friends of the institution.

Dr. LeRoy C. Abbott, St. Louis, chief surgeon at the Shriners' Hospital for Crippled Children, has resigned to accept a post as head of the department of orthopedics in Stanford University School of Medicine, San Francisco. The resignation becomes effective December 1. Dr. Clarence Crego, first assistant to Dr. Abbott, will be his temporary successor pending the making of a permanent appointment. Dr. Abbott has been chief surgeon at the hospital since it was opened in December, 1923.

Calling a doctor is easier in the United States than in any other country according to statistics recently compiled by the American Medical Association. The number of physicians per 100,000 of population in some of the leading countries is: United States, 1266; Austria, 1139; Great Britain, 1114; Iceland, 850; Switzerland, 799; Spain, 711; Japan, 768; and Cuba, 758. Persia is forty-first in the list with 25 physicians to each 100,000 persons.

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Dr. Bransford Lewis, St. Louis, professor of urology, St. Louis University School of Medicine, was a guest of the Terre Haute Academy of Medicine, September 5, and read a paper on "Movable Kidney" illustrated with lantern slides. On October 13, Dr. Lewis was a guest of the Adams County Medical Society at Quincy, Illinois, and read a paper on "Uroselectan" illustrated with lantern slides.

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The St. Louis Trudeau Club will hold its regular monthly meeting Thursday, November 6, at 8:15 p. m. in the St. Louis Medical Society building. The scientific program follows: "Early Symptoms in Pulmonary Tuberculosis; Study of One Hundred and Thirty-Three Cases at Mount St. Rose Sanatorium," Drs. Andrew C. Henske and Charles W. Ehlers. "Mouth Hygiene in Relation to Tuberculosis," Dr. Harry Van Allen. "End-Result of Thoracoplasty," Dr. Duff S. Allen. Members of the State Medical Association are invited to attend.

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The corner stone of the Edward Mallinckrodt Institute of Radiology of Washington University, St. Louis, was placed October 2, before an informal gathering of university officials and interested individuals. The building is expected to be completed about January 1 at a cost of \$500,000. Within the copper box placed in the corner stone was a picture of the late Edward Mallinckrodt, Sr., who left a bequest of \$300,000 for the erection of the institute.

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In recognition of his work on cancer, *Science* tells us Dr. Thomas S. Cullen, Baltimore, professor of clinical gynecology in the Johns Hopkins University School of Medicine, was presented with the degree of Doctor of Laws by the University of Toronto at a special convocation September 16 in connection with the opening of the Banting Research Institute at Toronto. Dr. Cullen was graduated in medicine by the University of Toronto in 1890. He was a guest of our Association at the Columbia session in 1928 and has many friends among the members of our Association.

Dr. Cyrus E. Burford, St. Louis, and Dr. D. L. Sexton, St. Louis, were the guests of the Greene County Medical Society at the opening meeting of their fall session held in Springfield, September 12. They made this trip at the request of the Committee on Postgraduate Course. Dr. Burford spoke on, "Surgical Conditions of the Kidney," and Dr. Sexton discussed, "Diagnosis and Treatment of Endocrine Disorders."

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The license of John R. Brinkley, Milford, Kansas, goat gland quack, was revoked on September 17 by the Kansas Board of Medical Examiners. This action terminated a long and spectacular trial. The Missouri State Board of Health has cited Brinkley on a charge of unprofessional conduct based upon complaints from residents of Missouri. Brinkley was licensed in Missouri by reciprocity with Kansas.

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The fifth annual clinical conference of the Adams County (Illinois) Medical Society will be held at the Elk's Club, Quincy, Illinois, November 17. Among those scheduled to deliver addresses are, Dr. R. L. Haden, of the Crile Clinic, Cleveland, formerly of Kansas City, Missouri; Dr. George W. Crile and Dr. William Mullen, both of the Crile Clinic. Missouri physicians are invited to attend the meeting.

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The Department of Health of New York City with the cooperation of the Board of Education plans to commence roentgen ray examination of the city's 1,250,000 school children in February, 1931. Health Commissioner Wynne has announced that this is an attempt to find the children who may show early symptoms of tuberculosis. Such cases will be followed into the homes in a thorough search for contacts and the family physician will be apprised of the findings. In families without means where there is no private physician the department will assume the care.

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The second annual inactive duty training period for medical reserve officers will be held at Rochester, Minnesota, November 9 to 23 under the sponsorship of the Mayo Foundation and personally supervised by instructors of the Medical Corps of the United States Army. The course of instruction is arranged so as to allow visiting officers to attend clinics in the mornings and the school of instruction during the afternoons and evenings. Medical reserve officers interested should write Colonel Louis B. Wilson, the Mayo Foundation, Rochester, Minnesota, for further information.



Dr. Fred J. Taussig, St. Louis, was elected president of the Central Association of Obstetrics and Gynecologists at the annual session held in Excelsior Springs, October 13. Dr. Taussig succeeds Dr. Palmer Findley, of Omaha, the first president of the organization.

Dr. Richard S. Weiss, St. Louis, associate professor of clinical dermatology, Washington University School of Medicine, was a guest at the meeting of the tenth councilor district of the Arkansas Medical Society at Fort Smith, Arkansas, September 16, and delivered an address on "Drug Eruptions" which he illustrated with lantern slides. He laid special stress on the eruptions caused by the newer drugs, especially the barbitol group, and the skin reactions that follow the use of phenolphthalein. The lantern slides were from the collection at the Barnard Free Skin and Cancer Hospital.

Dr. Joseph Collins, neurologist of New York City and author of "The Doctor Looks at Marriage and Medicine," and "The Doctor Looks at Literature," as well as other similar works, gave three lectures October 13 and 14 under the auspices of the Porter Lectureship in Medicine of the medical school of the University of Kansas. Two of the lectures were given at the Bell Memorial Hospital, Kansas City, Kansas, the third at Lawrence, Kansas. Dr. Collins' lectures were the second course under this lectureship which was established by Dr. J. L. Porter, Paola, Kansas.

Physicians and surgeons gathered at Baltimore to attend a postgraduate course in cancer at Johns Hopkins University, September 15, 16, and 17, were told that the number of cured cases of cancer of the bone was greatly increasing. In 1913 there was not one verified case of cancer of the bone cured by any treatment, Dr. J. C. Bloodgood, Baltimore, said. In 1921 only 4 per cent of less than 500 cases registered at Johns Hopkins Hospital were listed as cures, and these only by amputation. The number of cures in 1930 varied from 11 to 41 per cent in different types. Dr. Bloodgood said the education of the people through the press on the importance of immediate roentgen ray examination whenever there is pain or swelling in the region of a bone or joint is largely responsible for the increased number of cures.

The Riggs Optical Company, one of the largest dealers in optical goods in the country and for many years an advertising patron of our JOURNAL, announces that Mr. Elwood Riggs, the founder and former president of

the company, has severed his connection with the firm. Mr. Riggs retired from active business life a number of years ago and established his residence in California. The company will continue operating under the name of Riggs Optical Company with Mr. Roy M. Wahlgren, president. Other officers and directors recently elected are: Vice presidents, Arthur W. Hazen and Earle G. Wahlgren; secretary-treasurer, L. L. Lintner; directors, Arthur W. Hazen, John G. Hodgins, L. L. Lintner, Earle G. Wahlgren and Roy M. Wahlgren.

The Kansas City *Star* of October 5 mentions the unusual, perhaps unique, experience in Missouri of Dr. Tinsley Brown, of Hamilton, when he completed his fifty-fourth year in active practice. "Dr. Brown," the *Star* says, "is one of the oldest practicing physicians in North Missouri. Approaching 81, he has been engaged in the practice of his profession since 1876. Dr. Brown is a former president of the Missouri State Medical Association and for several years was one of the regents of the State Industrial Home for Girls at Chillicothe. He is a former mayor of Hamilton."

The Noyes-Baptist Hospital, St. Joseph, held its first clinic, September 17. The clinic was opened at 8 a. m. with surgical demonstrations. Eye, ear, nose and throat clinics and medical clinics were conducted in the afternoon. A banquet for visiting physicians was given in the evening and a meeting of the Buchanan County Medical Society was held. An educational motion picture on "The Treatment of Infections in the Hands," was shown. Physicians from Missouri, Iowa and Kansas attended. The Noyes-Baptist Hospital opened its doors in October, 1929, and has received approximately 2000 patients.

The United States Civil Service Commission announces open competitive examinations for senior medical technician and medical technician in bacteriology and senior medical technician and medical technician in roentgenology. Applications must be filed not later than November 5. The examinations are to fill vacancies in the United States Veterans' Bureau. Competitors will not be required to report for written examination at any place, but will be rated on their education, training and experience. The Commission also announces open competitive examinations for medical officer, associate medical officer and assistant medical officer. Applications for these positions must be on file not later than December 30. The examinations are to fill vacancies in the Veterans' Bureau, Public

Health Service, Coast and Geodetic Survey, Panama Canal Service and Indian Service. Papers will be rated as received and certification made as the needs of the service require. Government hospitals throughout the country, including those under the Veterans' Bureau, the Public Health Service, the Indian Service, and other branches, are in need of medical officers and nurses of various grades, and Veterans' Bureau hospitals have vacancies in positions of psychiatric social worker and junior social worker. Full information may be obtained on all these announcements from the Civil Service Commission at Washington, D. C., or from the Civil Service Board at the post office or customhouse in any city.

Dr. Scott P. Child, Mount Vernon, assistant physician at the State Sanatorium for Tuberculosis, was seriously hurt in an automobile accident about twenty miles from Kansas City, September 14. He was taken to St. Luke's Hospital, Kansas City, suffering from concussion of the brain. His many friends will be glad to know that he has recovered. Dr. Child practiced in Kansas City for many years but for the last two years has been identified with state institutions. He was assistant physician of State Hospital No. 3, Nevada, for a year and is now assistant physician at the State Sanatorium for Tuberculosis at Mount Vernon. He was a delegate to the state meeting in 1920, vice president of the Jackson County Medical Society in 1923 and president in 1924. He was fourth vice president of the State Association in 1918-1919 and was a member of the publication committee of *THE JOURNAL* from August, 1913, to April, 1924.

Dr. Morris Fishbein, editor of the *Journal of the American Medical Association*, Dr. H. S. Warren and Dr. Sidney A. Portis, also of Chicago, and Dr. E. H. Cary, Dallas, Texas, accompanied by their wives, passed through St. Louis in September on their way to Denver, Colorado. In St. Louis they were the guests of Dr. Ralph L. Thompson and stopped long enough to play a game of golf on Sunset Hill Country Club course and spend the night. They were making the trip in two automobiles. On the way to Kansas City where they were to be the guests of Dr. and Mrs. W. W. Duke, they met with an accident about forty miles east of Kansas City on Highway No. 40 which resulted in the serious injury of Dr. and Mrs. Fishbein and minor bruises to Dr. Cary. The others in the party were uninjured. They were taken to the Trinity Lutheran Hospital in Kansas City and placed under the care of Dr. Jabez N. Jackson. Dr. and Mrs. Fishbein have fully recovered.

Dr. Eldon M. Findley, Graham, Missouri, was appointed instructor in physiology at the school of medicine of the University of Missouri, September 14. Dr. Findley obtained his preliminary education at the Southwestern Normal School, Weatherford, Oklahoma, and at the University of Missouri where he also studied medicine for two years. He completed his medical education at Harvard Medical School and received his diploma in 1916. After practicing in Havelock, Nebraska, for almost two years he located in Graham where he remained until his appointment on the faculty of the school of medicine. Eight other appointments, two reappointments and a promotion among student assistants were also announced.

A hospital for the criminal insane and for physical and mental defectives now housed in federal prisons may be erected in Missouri if a suitable site is given the federal government, the bureau of prisons announced October 11. A tract of at least 500 acres is desired. The land must be conveniently shaped, in a healthy locality, have a good water supply and be on a main line of transportation. The offers of prospective sites must be received by the bureau of prisons in Washington, D. C., before November 15. The new hospital was authorized at the last session of Congress. The plan is to remove all the mental and physical defectives from the federal prisons. A separate hospital for narcotic addicts is being built in Kentucky.

The work of the Kansas City Health Department under the direction of Dr. Calvin L. Cooper was outlined and praised in the *Kansas City Journal-Post*, September 14. Problems that the department must cope with and achievements which it works toward were discussed. At the opening of the school year a new campaign to guard the health of children was launched, both to protect them against disease and to educate them in methods of maintaining good health. Despite the objections raised by a few parents to reports that their children are not exactly perfect, several thousand mothers came last year at the request of school nurses to discuss health problems of their children. Dr. Cooper was appointed health director for Kansas City in June, 1929. He has served on the board of censors of the Jackson County Medical Society for the last three years.

Interested physicians and dentists are invited to the conferences to be held by the 102d Division, U. S. Army Reserve, during the winter and spring. These meetings will be held at St. Louis University School of Medicine on the fourth Monday of each month. The



general conference at 7 p. m. is of interest to all branches of the Service but the conference of medical units and attached groups follows at 8:15 p. m. These are under the direction of Major R. M. Hardaway, M.C., assisted by Major C. J. Gaynor, D.C., and Major J. E. Phillips, M.C. An instructive program is planned, taking up one or more of the "Extension Course" subjects. The first topic will be the subcourse "Map Reading." Those planning to attend are invited to write to the Chief of Staff, Headquarters, 102d Division, Third and Olive Streets, St. Louis, for the lessons on this interesting subject.

The general conference on Monday, October 27, was particularly attractive to medical men. Col. George L. Byroade, Inf., of the Command and Staff School, Fort Leavenworth, spoke on "The Offensive." Colonel Byroade is an unusually interesting speaker as well as outstanding instructor. The Corps Area Surgeon, Col. George A. Skinner, was present and addressed the meeting. Colonel Skinner is much interested in Reserve Corps activities and will be glad to confer with officers concerning problems that may arise in their work.

The first two days of the twenty-fourth annual meeting of the Southern Medical Association at Louisville, Kentucky, November 11 to 14, will be made up of general clinical sessions, the Tuesday program by physicians of Louisville and the Wednesday program by physicians from outside of Louisville. On Thursday and Friday eighteen sections and conjoint meetings will be held. One of the principal features of the meeting will be an "after Louisville" event at Frankfort where a statue of Dr. Ephraim McDowell will be unveiled. A visit to Danville, the home of McDowell, will follow the unveiling. The statue is a sculptor's model of the McDowell statue in Statuary Hall, Capitol Building, Washington, D. C. Kentucky selected McDowell as one of the two immortals each state is allowed to honor in this way. Dr. McDowell, originally of Virginia, was a pupil of John Bell, of Edinburgh. In 1795 he settled in Danville, Kentucky, then one of the outposts of civilization, and soon became known as a skillful surgeon, especially in lithotomy which he performed twenty-two times in succession without the loss of a case. In 1809 he performed the first ovariectomy ever attempted. The patient was a woman 47 years old and successfully passed through the ordeal. For this he is given credit of making the initial advance in abdominal surgery.

The New York Academy of Medicine, Fifth Avenue and 103rd Street, New York City, an-

nounces a fifth series of lectures on subjects of interest to the practitioner to be held on Friday afternoons at 4:30 o'clock. Members of the profession are invited. Subjects of lectures follow: November 7, "Epilepsy and the Convulsive State"; November 14, "Carcinoma of the Colon"; November 21, "The Treatment of Pelvic Infection"; December 5, "The Thyroid"; December 12, "The Therapeutics of Ultraviolet Light"; December 19, "Occupational and Industrial Diseases"; January 9, "Treatment of Anemia"; January 16, "Diet in Disease"; January 23, "Roentgenographic Delineation of the Urogenital Tract"; January 30, "Certain Aspects of Syphilitic Cardiac Disease"; February 6, "Osteomyelitis"; February 13, "Tuberculosis of Bones and Joints, Diagnosis and Treatment"; February 20, "Cancer as a Complication of Skin Diseases"; February 27, "Common Diseases of the Teeth and Jaws" and "Vincent's Infection"; March 6, "Practical Advances in the Study of the Liver and Its Diseases"; March 13, "Silicosis; Its Present Aspect"; March 20, "Arthritis"; March 27, "Allergy in Children"; April 10, "The Early Diagnosis and Treatment of Poliomyelitis"; April 17, "Problems of Gastro-Enterology Today."

On October 20 Circuit Judge Hall, St. Louis, rendered two decisions on appeals from the action of the State Board of Health in revoking the licenses of two physicians. One decision supported the Board's action, the other decision reversed the Board and restored the license. The physician whose license was restored is Dr. W. R. Harmon, Springfield, whose license was revoked last June on the charge that he had performed an illegal operation on a woman. Judge Hall said the testimony showed that the woman was tuberculous and this condition together with internal complications rendered the operation necessary and therefore not illegal.

The other physician whose license was revoked and the action of the Board sustained by Judge Hall was Dr. Robert Lentine, St. Louis, who pleaded guilty last March in Chicago of participating in a diploma mill in connection with a fraudulent medical license ring in Illinois for which he served a sentence of two months. The charge against Lentine was bad moral character. In the decision supporting the action of the Board of Health the Court said: "The necessary requirements of one seeking a license as a practitioner of medicine should be of the highest. A physician holds in his hands the life of a patient, and one with bad character should not be placed in the position of using the wonderful authority with

which he is endowed, knowing how he could accomplish great wrong."

The following articles have been accepted for New and Nonofficial Remedies:

Eli Lilly & Co.

Amytal

Pulvules Sodium Amytal, 3 grains

Old Tuberculin, Human Strain, Concentrated, 2 vial packages

McKesson & Robbins, Inc.

McKesson's Vitamin Concentrate of Cod Liver Oil

E. S. Miller Laboratories, Inc.

Ampoule Sterile Solution Dextrose, U.S.P., 5 Gm., 10 c.c.

Ampoule Sterile Solution Dextrose, U.S.P., 10 Gm., 20 c.c.

Plant Products Co.

Plant's Magnesia Wafers

The following articles have been exempted and included with the List of Exempted Medicinal Articles (New and Nonofficial Remedies, 1930, p. 477):

H. K. Mulford Co.

Pollen Extracts Diagnostic—Mulford

## OBITUARY

### JAMES C. WELCH, M.D.

Dr. James C. Welch, Salem, a graduate of the Medical College of Ohio, Cincinnati, 1889, died May 30, of cerebral hemorrhage, aged 69.

Dr. Welch was very active in the Dent County Medical Society, being president in 1924 and 1929 and a delegate to the State Meetings in 1927, 1928, and 1929. He was highly esteemed outside the profession as well as by his colleagues. Before moving to Salem Dr. Welch practiced at Summersville.

### ABRAHAM BASSMAN, M.D.

Dr. Abraham Bassman, St. Louis, a graduate of the National University of Arts and Sciences Medical Department, St. Louis, 1914, died at the Jewish Hospital September 16, of pneumonia after an illness of six weeks, aged 50.

Dr. Bassman came to this country from Russia thirty years ago. He began his medical studies at Jefferson Medical College, Philadelphia, but completed his medical education in St. Louis receiving his degree from the National University of Arts and Sciences Medical Department. He is survived by his widow, Mrs. Rose Bassman, a son, a daughter and a sister.

Dr. Bassman was a member of the St. Louis Medical Society and a Fellow of the American Medical Association.

### TIPTON MCLEMORE, M.D.

Dr. Tipton McLemore, Nevada, a graduate of the Missouri Medical College (now Washington University School of Medicine), St. Louis, 1897, died July 30, at Moberly, of tumor of the spinal cord, aged 59.

Dr. McLemore was born near Greenfield, Missouri, and attended the public school and Ozark College at that place. After completing his medical course he practiced in Greenfield for seven years. In 1904 he removed to Nevada and remained in practice there until his death. During his twenty-six years in Nevada he made many friends both among the members of his profession and laymen. Dr. McLemore was a member of the Vernon-Cedar County Medical Society and served as alternate delegate to the State Meeting in St. Louis in 1926. He was a member of the American Academy of Ophthalmology and Oto-Laryngology. He specialized in diseases of the eye, ear, nose and throat and was local surgeon for the Missouri Pacific Railroad Company at Nevada.

### JOHN WILSON, M.D.

Dr. John Wilson, Liberty, a graduate of St. Louis Medical College (now Washington University School of Medicine), St. Louis, 1866, died at the home of his sister, Mrs. R. H. Miller, Liberty, March 28, of cerebral hemorrhage and angina pectoris, aged 91.

Dr. Wilson was born in Boonville, Mo., March 25, 1840. In his early youth he moved with his parents to Platte County, and received his early education in the public schools of that county, later entering the St. Louis Medical College, from which he graduated. In 1861 he joined the Confederate army and served as a lieutenant in a regiment composed of men from his own county and commanded by Col. H. Winston. He served during the entire period of the Civil War and was a captain when discharged from the army.

Dr. Wilson married Miss Anne Petticord, of Humboldt, Kansas, in 1870, and moved to Kansas City the same year to establish his practice. After fifty years of faithful service in Kansas City he retired to the home of his sister. His retirement was recognized by the Jackson County Medical Society, of which he was the last charter member, with the presentation of a loving cup.

Dr. Wilson was a man beloved by friends and patients; he gave a long and active life for the benefit of the sick without any apparent mercenary objective in view. A man of the old school who did good and forgot it; beloved by fellow physicians and always ready and willing to lend a helping hand.



The members of Jackson County Medical Society join in extending their heartfelt sympathy to his many relatives and friends.

ELLERY M. HETHERINGTON, M.D.,  
in the *Bulletin* of Jackson County  
Medical Society.

## SOCIETY PROCEEDINGS

### COUNTY SOCIETY HONOR ROLL FOR 1930

(UNDER THIS HEAD WE LIST SOCIETIES WHICH  
HAVE PAID DUES FOR ALL THEIR MEMBERS)

#### HONOR ROLL

Mercer County Medical Society, December 12, 1929.

Madison County Medical Society, December 16, 1929.

Benton County Medical Society, January 8, 1930.

Pulaski County Medical Society, January 11, 1930.

Webster County Medical Society, January 24, 1930.

Chariton County Medical Society, January 27, 1930.

Ralls County Medical Society, March 6, 1930.

Camden County Medical Society, March 10, 1930.

Dent County Medical Society, April 2, 1930.

Schuyler County Medical Society, April 5, 1930.

Platte County Medical Society, April 7, 1930.

Christian County Medical Society, April 7, 1930.

Macon County Medical Society, April 12, 1930.

Miller County Medical Society, April 14, 1930.

Phelps County Medical Society, April 25, 1930.

Atchison County Medical Society, April 30, 1930.

Lafayette County Medical Society, May 9, 1930.

St. Louis County Medical Society, August 26, 1930.

Adair County Medical Society, September 26, 1930.

Marion County Medical Society, October 11, 1930.

### CASS COUNTY MEDICAL SOCIETY

The Cass County Medical Society met at the home of Dr. and Mrs. A. H. Baldwin, Pleasant Hill, September 11. The meeting was called to order by the president, Dr. A. H. Baldwin. The minutes of the previous meeting were read and approved.

The applications of Dr. L. V. Murray, Pleasant Hill, and Dr. I. N. Parrish, Freeman, for membership were reported favorable by the board of censors and they were elected to membership.

It was suggested that the members who had not paid their dues be written and urged to pay their dues. There are nineteen members and thirteen have paid dues.

Dr. J. S. Triplett, Harrisonville, was appointed by the president to serve as a member of the Auxiliary Committee on Public Policy.

On motion of Dr. J. S. Triplett, seconded by Dr. D. S. Long, and carried, Dr. L. V. Murray, Pleasant Hill, was appointed secretary-treasurer to fill the unexpired term of Dr. W. L. Veirs, Pleasant Hill, who has moved away.

A suggestion was made that the proceedings of all meetings be reported to the State Association Secretary for publication in *THE JOURNAL* and that items of interest be given to the local newspapers for publication. Following this there was a general discussion of the past and future programs of the Society. Each member pledged himself to do his part in the work of the Society and to put on local programs.

The history of the Cass County Medical Society up to 1928 was read by Dr. W. L. Veirs, Pleasant Hill, who wrote the narrative of events. A vote of thanks was extended to Dr. Veirs for his work as secretary for the last seven years.

The meeting adjourned that the members might partake of a bounteous picnic supper prepared by the Woman's Auxiliary.

The following members were present: Drs. A. H. Baldwin, L. V. Murray and W. L. Veirs, of Pleasant Hill; Dr. I. N. Parrish, Freeman; Drs. A. R. Elder, D. S. Long, M. P. Overholser and J. S. Triplett, of Harrisonville.

L. V. MURRAY, M.D., Secretary.

### FIVE COUNTY MEDICAL SOCIETY

The regular meeting of the Five County Medical Society, comprised of Butler, Dunklin, New Madrid, Pemiscot and Stoddard counties, was held at Hayti, Wednesday evening, September 10. The meeting was preceded by a luncheon served by the Ladies' Aid of the Methodist Church in the basement of the church. There were thirty-eight members and visitors present. The president of the Pemiscot County Medical Society, Dr. J. B. Luten, Caruthersville, presided.

The guests of the Society were Drs. Ralph A. Kinsella and Arthur E. Strauss, of St. Louis. These very able speakers were sent to us through the courtesy of the Postgraduate Committee of the State Association. Dr. Kinsella spoke on "Vaccines," and Dr. Strauss discussed "Chronic Myocarditis."

Dr. Kinsella gave a highly interesting account of the present status of vaccines in the treatment of various conditions, touching particularly upon the vaccines for rheumatism.

Dr. Strauss showed that he was a thorough master of his subject, and presented his thoughts in such a plain, simple and informal manner that he aroused the keenest interest of every one present.

Both speakers were very freely questioned.

The next meeting of the Society will be held at Poplar Bluff, December 10.

T. C. ALLEN, M.D., Secretary.

### JASPER COUNTY MEDICAL SOCIETY

The Jasper County Medical Society held its first meeting of the season at Joplin, October 14. Seventeen members and eleven visitors were present. We had as our guest, Dr. George E. Knappenberger, Kansas City, who came through the courtesy of the Postgraduate Committee of the State Association.

Dr. Knappenberger gave a very interesting talk

on "The Factors Concerned in the Curability of Peptic Ulcer." This subject was presented in a logical and interesting manner and was followed by considerable discussion.

O. T. BLANKE, M.D., Secretary.

#### NODAWAY COUNTY MEDICAL SOCIETY

The regular meeting of the Nodaway County Medical Society was held Friday, September 12, in the first-floor lecture room of the St. Francis Hospital, Maryville. The meeting was called to order by the president, Dr. Leslie E. Dean, Maryville, at 7:45 p. m. The following members responded to roll call: Drs. C. T. Bell, J. A. Bloomer, K. C. Cummins, L. E. Dean, C. V. Martin, R. C. Person, Jack Rowlett, and Wm. Wallis, Jr., of Maryville; Dr. Clarence J. Garding, Conception Junction; Dr. Charles D. Humbert, Barnard; Dr. John A. Phipps, Elmo; Dr. W. M. Hindman, Burlington Junction. Dr. G. Leonard Harrington, Kansas City, and several Sisters of the hospital staff were present as guests of the Society. The minutes of the regular meeting of June 13, 1930, were read and approved.

The committee of censors appointed at the last regular meeting reported that the statements in the application of Dr. R. B. Bridgman, Jr., Hopkins, for membership had been verified. Dr. Wm. Wallis, Jr., moved that the report be accepted and the committee discharged. The motion was seconded by Dr. C. V. Martin and carried.

Dr. Wm. Wallis, Jr., moved that the regular procedure of balloting be suspended and the secretary instructed to cast the ballot of the Society unanimously electing Dr. Bridgman to membership. The motion was seconded by Dr. W. M. Hindman, Burlington Junction, and carried, and the secretary, Dr. Charles D. Humbert, cast the ballot electing Dr. Bridgman to membership.

The meeting was then turned over to Dr. G. Leonard Harrington, Kansas City, lecturer in psychiatry at the University of Kansas Medical School, the principal speaker of the evening. He had come to us through the courtesy of the Postgraduate Committee of the State Medical Association. Dr. Harrington delivered an interesting address on "Psychology in Medicine, With Especial Attention to the Neuroses." His paper was heard with much interest and was followed by a lively discussion.

The meeting adjourned at 11:00 p. m.

CHARLES D. HUMBERT, M.D., Secretary.

#### RANDOLPH-MONROE COUNTY MEDICAL SOCIETY

The Randolph-Monroe County Medical Society met in Moberly, Tuesday, September 9, with Dr. L. O. Nickell, Moberly, president, in the chair. Dr. D. A. Barnhart, Huntsville, was appointed by the president to act as secretary in the absence of Dr. T. S. Fleming, Moberly, who is away on vacation. Members present were: D. A. Barnhart, Huntsville; W. A. Davis, Macon; L. E. Huber, F. L. McCormick, L. O. Nickell, S. T. Ragan and R. D. Streeter, of Moberly. Visitor: Dr. E. Lee Shrader, St. Louis. The application of Dr. Max Kaiser, Wabash Employee's Hospital, Moberly, for membership was reported on favorably by the board of censors and Dr. Kaiser was unanimously elected a member.

Dr. S. T. Ragan, Moberly, gave a splendid address on "Some Occasional Untoward Effects of Treatment of Syphilis by Arsenic With Special Reference

to Skin Exfoliation." The subject was well handled and generally discussed.

A committee of three to investigate the advisability of holding a clinical meeting some time in October was appointed by the president and asked to report at the next regular meeting. The committee consists of Drs. D. A. Barnhart, Huntsville; F. L. McCormick and R. D. Streeter, of Moberly.

D. A. BARNHART, M.D., Secretary pro-tem.

#### ST. FRANCOIS-IRON COUNTY MEDICAL SOCIETY

The St. Francois-Iron County Medical Society met in regular session at State Hospital No. 4, Farmington, September 26, at 8 p. m. A short business meeting was held.

Dr. W. J. Bryan, Flat River, read a paper on "Lung Abscess" and illustrated his subject with roentgen ray plates.

Dr. A. L. Evans, Bonne Terre, who was scheduled to read a paper on "The Care of Little Children," was unable to be present.

The president, Dr. Emmett F. Hctor, Farmington, asked Dr. W. W. Johnston, Flat River, to give us a talk on his recent trip to Europe. Dr. Johnston responded with a short description of his travels abroad and read a reprint of an article on "The Therapeutic, Preventive and Social Value of Heliotherapy in Surgical Tuberculosis," which was originally delivered as the Cavendish Lecture before the West London Medico-Chirurgical Society June 15, 1928, by Dr. A. Rollier, Leysin, Switzerland.

The next meeting of the Society will be held at the Bonne Terre Hospital, Bonne Terre.

RALF HANKS, M.D., Secretary.

#### ST. LOUIS COUNTY MEDICAL SOCIETY

The St. Louis County Medical Society met at the home of Dr. William F. O'Malley, Kirkwood, Wednesday afternoon, September 10. The president, Dr. Robert B. Denny, Creve Coeur, called the meeting to order at 3:00 p. m. with the following members present: Drs. H. N. Corley and C. P. Dyer, of Webster Groves; Dr. R. B. Denny, Creve Coeur; Drs. D. Henry Hanson and W. F. O'Malley, of Kirkwood; Dr. F. P. Knabb, Valley Park; Dr. Otto W. Koch, Clayton; Dr. L. C. Obrock, St. Louis; Dr. F. J. Petersen, Richmond Heights; Drs. W. H. Townsend and E. E. Tremain, of Maplewood. Dr. W. C. Gayler, St. Louis, President of the State Association, and Dr. B. K. Stumberg, St. Charles, Councilor of the Eighth District, were guests.

Dr. W. C. Gayler was sent to us through the courtesy of the Postgraduate Committee of the State Association. He read a paper on "Occipito-Posterior Position." His paper was well received and thoroughly enjoyed.

On motion of Dr. Otto W. Koch, seconded by Dr. W. H. Townsend, and carried, Dr. Joseph T. Griest, University City, was elected an Honor Member.

The secretary read a letter from Dr. E. J. Goodwin, Secretary of the State Association, congratulating the Society upon having attained a place on the Honor Roll indicating that all members of the Society have paid their annual dues. This is the first time since the Honor Roll was established that the St. Louis County Medical Society has earned this distinction.

Mr. L. H. Cramblet, a representative of the Petrologar Laboratories, Chicago, showed three motion picture films: (1) Movements of the Elementary



Tract, (2) Anatomy of the Abdominal Wall, (3) Emergency Operation.

Dr. B. K. Stumberg, St. Charles, our Councilor, gave a short talk.

The application of Dr. B. Y. Glassberg, St. Louis, for a transfer to the St. Louis Medical Society was approved and the transfer ordered issued.

#### Meeting of October 8, 1930

The regular meeting of the St. Louis County Medical Society was held at the home of Dr. W. F. O'Malley, Webster Groves, Wednesday afternoon, October 8, at 2:30 p. m. The meeting was called to order by the president, Dr. R. B. Denny, Creve Coeur, with the following members present: Helen Gage, Garnett Jones, L. C. Obrock and J. D. Thurmon, of St. Louis; H. M. Denny and R. B. Denny, of Creve Coeur; H. N. Corley, C. C. Irick, W. F. O'Malley and A. W. Westrup, of Webster Groves; J. H. Sutter, University City; R. H. Trumpour, Kirkwood; F. P. Knabb, Valley Park; F. J. Petersen, Richmond Heights; E. E. Tremain, Maplewood. The minutes of the previous meeting were read and approved.

Dr. Hollis N. Allen, St. Louis, was elected a corresponding member.

On motion of Dr. J. D. Thurmon, seconded by Dr. L. C. Obrock, the president appointed a committee of three to meet with the St. Louis Community Council. The three members appointed are Drs. H. N. Corley and C. P. Dyer, of Webster Groves, and John H. Sutter, University City.

Dr. A. W. Westrup, Webster Groves, moved that the St. Louis County Medical Society go on record as opposing Amendment No. 5. The motion was seconded by Dr. F. J. Petersen, Richmond Heights, and carried 7 to 5.

Dr. Emmett P. North, St. Louis, was scheduled to read a paper but failed to appear. After the meeting had adjourned Dr. North apologized to the officers humbly acknowledging that the appointment had slipped his mind while he was attending a committee meeting at that hour.

Several of the members gave interesting case reports.

E. E. TREMAIN, M.D., Secretary.

#### ST. LOUIS MEDICAL SOCIETY

##### Meeting of General Society June 3, 1930

The meeting was called to order at 8:40 p. m. by the president, Dr. Vilray P. Blair. The minutes of the meeting of May 27 were read and approved.

A case of "Blastomycosis Involving the Prostate" was presented by Drs. G. V. Stryker and Grayson Carroll.

The following scientific program was given: "Staphylococcus Septicemia," Dr. Paul S. Lowenstein.

"Bacteriophage," illustrated with motion pictures, Dr. Ralph Muckenfuss.

Both papers were discussed by Drs. J. Bronfenbrenner, V. P. Blair and Julius A. Rossen.

"Impressions Gleaned on a Trip to Panama to Attend the Pan-American Medical Congress," Dr. Francis Reder.

Discussion by Dr. V. P. Blair.

Attendance 124.

HERBERT S. LANGSDORF, M.D., Secretary.

## WOMAN'S AUXILIARY

#### OFFICERS 1930-31

President, Mrs. A. W. McAlester, Kansas City.  
President-Elect, Mrs. U. J. Busiek, Springfield.  
1st Vice President, Mrs. C. M. Sneed, Columbia.  
2nd Vice President, Mrs. H. B. Goodrich, Hannibal.  
3rd Vice President, Mrs. R. S. Kieffer, St. Louis.  
4th Vice President, Mrs. W. L. Kenney, St. Joseph.  
Recording Secretary, Mrs. David S. Long, Harrisonville.  
Treasurer, Mrs. R. C. Haynes, Marshall.  
Auditor, Mrs. C. T. Ryland, Lexington.

## TRUTH ABOUT MEDICINES

#### ACCEPTED DEVICES FOR PHYSICAL THERAPY

The following have been accepted by the Council on Physical Therapy of the American Medical Association for inclusion in its list of accepted devices for physical therapy:

**THE DAVIS INHALATOR.**—The Davis Inhalator (Bullard-Davis, Inc., New York) is a portable apparatus designed to assist physicians in the administration of oxygen or a mixture of oxygen and 5 per cent carbon dioxide in resuscitation in various forms of asphyxia. Compressed gases are contained in tanks and by a reducing valve may be delivered at the desired pressure through a breathing bag and mask as demanded by artificial or natural breathing of the patient. The apparatus meets the requirements for inhalators of approved standard and incorporates devices which make for flexibility, adaptability and safety. (Jour. A. M. A. July 19, 1930, p. 200.)

**EKA SALT AND THE SALT FREE DIET.**—Eka salt (claimed to contain sodium malate as its essential constituent) is offered as a means of giving the same flavor as common table salt without making it necessary for the body to deal with the ten or fifteen grams of sodium chloride that would ordinarily be taken. Since no one knows whether the sodium or the chloride is responsible for any of the untoward effects attributed to sodium chloride, it would not be proper to include Eka salt in a diet that is intended to be strictly salt free. (Jour. A. M. A., June 7, 1930, p. 1859.)

**THE SALE OF SUNSHINE LAMPS TO THE PUBLIC.**—The Council on Physical Therapy has taken the stand that a sunshine lamp sold directly to the public should be so constructed that the radiant energy emitted shall not differ essentially from sunlight. Furthermore, the advertising and descriptive matter pertaining to such lamps should contain no curative claims nor mention of specific diseases. The Council believes that the advertising should be more conservative: it is not convinced that human beings in health require the great amount of ultraviolet energy one is led to believe is the case from the advertising pertaining to some of the so-called sunlamps sold to the public. (Jour. A. M. A., June 14, 1930, p. 1918.)

**A STATEMENT TO MANUFACTURERS OF PHYSICAL THERAPY EQUIPMENT.**—It has come to the attention of the Council on Physical Therapy that certain manufacturers make unscientific and unwarranted claims in advertisements that appear in publications

other than those of the American Medical Association while advertising the same equipment conservatively in publications of the Association. The Council calls the attention of manufacturers to the fact that all advertising must conform to the requirements of the Council if the apparatus is to remain acceptable to the Council. (Jour. A. M. A., June 14, 1930, p. 1918.)

**Super D Brand Cod Liver Oil.**—The Upjohn Company markets a product "Super D Brand Cod Liver Oil." The advertising that is issued for this preparation reads as if the product were cod liver oil fortified by the addition of irradiated ergosterol. The Upjohn Company has not requested consideration of the preparation by the Council on Pharmacy and Chemistry and so far the Council has not reported on it. The Council has announced the acceptance for New and Nonofficial Remedies of the following brands of cod liver oil with viosterol 5 D: Abbott's Cod Liver Oil with Viosterol 5 D (Abbott Laboratories); Parke, Davis & Co.'s Cod Liver Oil with Viosterol 5 D (Parke, Davis & Co.); Squibb's Cod Liver Oil with Viosterol 5 D (E. R. Squibb & Sons); Squibb's Cod Liver Oil with Viosterol 5 D, Mint Flavored (E. R. Squibb & Sons). (Jour. A. M. A., June 14, 1930, p. 1939.)

**No INTESTINAL ANTISEPTIC.**—There is really no such thing as an intestinal antiseptic, if that term is defined as equivalent to disinfectant, there being no known influence capable of killing the micro-organisms in the living intestine. If the term is defined to include inhibition of the growth and diminution in the number of intestinal microbes, then diet (milk diet in most adults) constitutes perhaps the most important influence of that kind. Mild mercurous chloride might qualify as an efficient drug with a tendency in this direction. Phenolsulphonates (sulphocarbolates) are worthless. (Jour. A. M. A., June 14, 1930, p. 1939.)

**THE VREELANDS QUACKERY.**—Clayt Vreeland of Cleveland, Ohio, has for some years been defrauding the baldheaded. He did business under such trade names as "The Vreelands, Inc.," "The Vreelands," and "Vreeland." Finally the postal authorities got around to Mr. Vreeland and on June 24, 1930, the Postmaster General issued a fraud order debarring from the United States mails The Vreelands, Inc., The Vreeland, Vreeland, and their officers and agents. The business was the rather simple one of selling a preparation for the alleged growing of hair. The stuff was called "Hairerbs." It was found to be composed of glycerin and water with a trace of sage oil. (Jour. A. M. A., July 19, 1930, p. 219.)

## NEW AND NONOFFICIAL REMEDIES

The following products have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in New and Nonofficial Remedies:

**GAS-GANGRENE ANTITOXIN (Combined) Refined and Concentrated**—P. D. & Co.—An antitoxic serum prepared from the toxins of *B. perfringens* (*B. welchii*) and vibron septique. The quantity of the finished product in the marketed syringes contains 100 units of each antitoxin. It is proposed for therapeutic use against gas-gangrene infection caused by *B. perfringens* and vibron septique. It is marketed in syringes containing 100 units of perfringens antitoxin and 100 units of vibron septique antitoxin. Parke, Davis & Co., Detroit.

**INHALANT CHLORETONE, CREOSOTE AND EUCALYPTOL**—Sorensen.—It contains chloretone (New and Nonofficial Remedies, 1930, p. 115) 1.2 Gm. (20 grains);

creosote, 2.5 c.c. (40 minims); eucalyptol, 3.75 c.c. (60 minims); alcohol to make 30 c.c. (1 fluidounce). C. M. Sorensen Co., Inc., Long Island City, N. Y.

**SOLUBLE GELATIN CAPSULES**—Parke, Davis & Company's Standardized Cod Liver Oil, 10 minims.—Each capsule contains 10 minims of Parke, Davis & Company's Standardized Cod Liver Oil (New and Nonofficial Remedies, 1930, p. 256). Parke, Davis & Co., Detroit.

**SOLUBLE GELATIN CAPSULES**—Parke, Davis & Company's Standardized Cod Liver Oil, 20 minims.—Each capsule contains 20 minims of Parke, Davis & Company's Standardized Cod Liver Oil (New and Nonofficial Remedies, 1930, p. 256). Parke, Davis & Co., Detroit.

**SOLUBLE GELATIN CAPSULES**—Parke, Davis & Company's Standardized Cod Liver Oil, 2.5 Gm.—Each capsule contains 2.5 Gm. Parke, Davis & Company's Standardized Cod Liver Oil (New and Nonofficial Remedies, 1930, p. 256). Parke, Davis & Co., Detroit.

**SOLUBLE GELATIN CAPSULES**—Parke, Davis & Company's Standardized Cod Liver Oil, 5 Gm.—Each capsule contains 5 Gm. of Parke, Davis & Company's Standardized Cod Liver Oil (New and Nonofficial Remedies, 1930, p. 256). Parke, Davis & Co., Detroit. (Jour. A. M. A., September 6, 1930, p. 729.)

**QUININE BISMUTH IODIDE.**—A substance of variable composition containing between 18 and 20.1 per cent of bismuth, between 48.7 and 53.5 per cent iodine; and quinine. Quinine bismuth iodide is proposed as a means of obtaining the systemic effect of bismuth in the treatment of syphilis.

**SODIUM POTASSIUM BISMUTHYL TARTRATE.**—A basic sodium potassium bismuth tartrate containing from 40.75 to 41.25 per cent of bismuth. It is proposed as a means of obtaining the systemic effects of bismuth in the treatment of syphilis.

**TARTRO-QUINIOBINE.**—A suspension of quinine bismuth iodide and sodium potassium bismuthyl tartrate in olive oil, each c.c. containing quinine bismuth iodide, 0.072 Gm., sodium potassium bismuthyl tartrate, 0.032 Gm., and camphor, 0.003 Gm. It is proposed as a means of obtaining the systemic effects of bismuth in the treatment of syphilis. It is designed to secure both early action through the presence of water-soluble sodium potassium bismuthyl tartrate, and prolonged action through the insoluble quinine bismuth iodide. It is supplied in 2 c.c. ampules. Spicer & Co., Glendale, Calif. (Jour. A. M. A., September 13, 1930, p. 797.)

**OLD TUBERCULIN**—Human Strain, Concentrated (New and Nonofficial Remedies, 1930, p. 360).—This product is also marketed in packages of two vials, one containing a stated amount of tuberculin and the other sufficient diluent to make six dilutions. Eli Lilly & Co., Indianapolis.

**CHINIOFON**—Searle.—A brand of chiniofon—N. R. (New and Nonofficial Remedies, 1930, p. 120.) It is also marketed in the form of 0.25 Gm. (4 gr.) tablets. G. D. Searle & Co., Inc., Chicago. (Jour. A. M. A., September 20, 1930, p. 865.)

**PLANT'S MAGNESIA WAFERS.**—Wafers, each containing magnesium hydroxide 0.3 Gm. (4.64 grains) compressed with the addition of sucrose and starch and essential oils as flavors. Used as an alkaline laxative and antacid. The magnesium content of each wafer is approximately equivalent to that of 4 c.c. of magnesia magma U. S. P. Plant Products Co., Cleveland, Ohio. (Jour. A. M. A., September 27, 1930, p. 935.)

**AMPULES EMULSION MESUROL**, 20 per cent, 1 c.c.—A suspension of mesurol (New and Nonofficial Remedies, 1930, p. 100) in sesame oil, each cubic



centimeter of which contains mesural equivalent to from 0.103 to 0.117 Gm. of bismuth. Winthrop Chemical Co., Inc., New York.

**TABLETS THEOCIN**,  $1\frac{1}{2}$  grains.—Each tablet contains theocin (New and Nonofficial Remedies, 1930, p. 415)  $1\frac{1}{2}$  grains. Winthrop Chemical Co., Inc., New York.

**AMPULES MERCUROCHROME**—H. W. & D., 1%, 10 c.c.—An aqueous 1 per cent solution of mercurochrome—220 soluble (New and Nonofficial Remedies, 1930, p. 271) stabilized with ammonium hydroxide; in 10 c.c. ampules. G. D. Searle & Co., Inc., Chicago.

**AMPULES MERCUROCHROME**—H. W. & D., 1%, 20 c.c.—An aqueous 1 per cent solution of mercurochrome—220 soluble (New and Nonofficial Remedies, 1930, p. 271) stabilized with ammonium hydroxide; in 20 c.c. ampules. G. D. Searle & Co., Inc., Chicago. (Jour. A. M. A., August 2, 1930, p. 343.)

**DIPHTHERIA TOXOID**—Cutter.—Diphtheria Toxoid—Cutter (New and Nonofficial Remedies, 1930, p. 485) is also marketed in packages of one 45 c.c. vial. Cutter Laboratory, Berkeley, Calif.

**SYNTHETIC THYROXINE**.—It contains not less than 65 per cent of iodine. It has the actions and uses of thyroxin, U. S. P. (New and Nonofficial Remedies, 1930, p. 403.) Synthetic thyroxine is supplied in the form of ampules containing 1.1 c.c. of solution containing 1 mg., and in the form of a solution, each c.c. containing 2 mg., and in tablets containing 1 mg. Hoffman-La Roche, Inc., Nutley, N. J. (Jour. A. M. A., August 16, 1930, p. 485.)

**ANTIMENINGOCOCCIC SERUM**.—Antimeningococcic serum (New and Nonofficial Remedies, 1930, p. 350) marketed in packages of two 15 c.c. syringes with apparatus for intraspinal injection; in packages of one 50 c.c. double-ended vial with apparatus for intraspinal injection. National Drug Co., Philadelphia.

**MERCUROCHROME SUPPOSITORY**—Aces.—Suppositories representing a 2 per cent solution of mercurochrome—220 soluble (New and Nonofficial Remedies, 1930, p. 271) in a slightly aromatized, hydroglycero-gelatin base; each suppository weighs approximately 6.5 Gm. (100 grains). Aces Laboratory, Inc., Brooklyn, N. Y. (Jour. A. M. A., August 23, 1930, p. 594.)

**WHITE'S COD LIVER OIL CONCENTRATE**.—A cod liver oil concentrate in the form of tablets (wafers), each containing not less than 250 vitamin A units and not less than 100 vitamin D units. White's cod liver oil concentrate possesses properties similar to those of cod liver oil so far as these depend on the fat soluble vitamin content of the latter. White Laboratories, Inc., Gloucester, Mass. (Jour. A. M. A., August 30, 1930, p. 663.)

### FOODS

The following products have been accepted by the Committee on Foods of the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in Accepted Foods:

**HEINZ RICE FLAKES**, prepared with Pure Rice Cellulose (H. J. Heinz Co., Pittsburgh). A flaked rice containing added rice cellulose, yeast, salt and milk sugar. Milled rice, rice cellulose (7 per cent of weight of rice), yeast (7 per cent), table salt (2.75 per cent), and milk sugar (0.5 per cent) are cooked, dried, flaked, toasted, cooled and packed. The product is a breakfast cereal containing indigestible cellulose that is claimed to be less irritant than

wheat bran. It is proposed for use in an anticonstipative diet.

**RY-KRISP** (Ralston Purina Co., St. Louis).—A whole rye grain wafer flavored with salt. Ry-Krisp may be used in cases of wheat allergy. The wafers encourage thorough chewing.

**MERRELL-SOULE POWDERED SKIM MILK** (The Borden Co., New York). A standard, uniform, practically fat free, powdered skim milk. It contains fat 1.0 per cent, protein 36.5 per cent, lactose 51.8 per cent, mineral matter 7.9 per cent, moisture 2.5 per cent. The product is offered as a near approach to a fat-free milk.

**CURTICE BROTHERS CERTIFIED NURSERY FOODS** (Curtice Bros. Co., Rochester, N. Y.). Sieved spinach, carrots and tomato, and vegetable purée. The water content approximates that of the raw vegetables. These foods are stated by the manufacturer to be especially prepared for babies and young children. The manufacturer guarantees a declared minimum number of units of vitamins A, B and C. This information is declared on the label of the cans.

**ALP ROSE CANNED FOODS** (John Sexton & Co., Chicago). These are canned fruits and vegetables, packed in water without added sugar or salt, and intended for use in restricted diets. The label declares the average composition for available carbohydrates, protein and fat.

**VAN CAMP'S PURÉED FRUITS AND VEGETABLES** (Van Camp Packing Co., Indianapolis). These include purées of peas, spinach, tomatoes, prunes, apricots, carrots with puréed tomatoes and beef broth, and mixed vegetables with beef broth. These foods are designed by the manufacturer to influence the greater use of certain vegetables of good nutritional value. They are intended to provide them in smooth diet form and are chosen for their vitamin values. (Jour. A. M. A., August 16, 1930, p. 485.)

**SUN WHEAT BISCUITS** (Canada Biscuit Co., Ltd., London, Ont.) A wheat biscuit with unusual vitamin and calcium content.

**SUNWHEATS** (The Sawyer Biscuit Co., Chicago). Sunwheats is the brand name for Sun Wheat Biscuits manufactured for distribution in the United States.

**HORLICK'S MALTED MILK** (Horlick's Malted Milk Corporation, Racine, Wis.). The product is a dried milk and extract of malted barley and wheat. Horlick's Malted Milk is claimed to be a nutritious food and when taken hot before retiring to be helpful for inducing sleep, and to be valuable in diets for undernourished, nervous patients, those afflicted with wasting diseases, invalids and convalescents.

**HORLICK'S SWEET CHOCOLATE FLAVOR MALTED MILK** (Horlick's Malted Milk Corporation, Racine, Wis.). The product is Horlick's Malted Milk flavored with cocoa. Its composition is essentially that of Horlick's malted milk.

**GRAPE-NUTS** (General Foods Corporation, New York; Postum Co., Inc., Battle Creek, Mich.). A breakfast cereal of whole wheat and malted barley. The manufacturer offers Grape-Nuts as an energy food providing proteins, the mineral elements of wheat and barley, and vitamin B. (Jour. A. M. A., August 23, 1930, p. 595.)

**HORLICK'S MALTED MILK LUNCH TABLETS** (Plain and Chocolate Flavored) (Horlick's Malted Milk Corporation, Racine, Wis.). These are Horlick's Malted Milk, plain and chocolate flavored, compressed into tablets. (Jour. A. M. A., September 20, 1930, p. 865.)

## BOOK REVIEWS

**OUTLINE IN OBSTETRICS FOR NURSES.** By F. W. Rice, M.D., Instructor in Obstetrics, Iowa Methodist Hospital, and Broadlawns General Hospital, Des Moines, Iowa. Illustrated. St. Louis: The C. V. Mosby Company. 1930. Price \$2.00.

While this book entirely covers the field of obstetrical nursing it is short, concise and to the point. It is very practical for reference purposes and valuable to the student nurse who does not intend to specialize in obstetrics. W. C. G.

**PROCEDURE IN EXAMINATION OF THE LUNGS.** With Especial Reference to the Diagnosis of Tuberculosis. By Arthur F. Kraetzer, M.D., Chief, Medical Department, New York Skin and Cancer Hospital, etc. With a foreword by James Alexander Miller, M.D. Oxford University Press, American Branch, 35 West 32nd Street, New York. Price \$2.00.

In this little book, the author urges that an inductive technic in the examination of the lungs be substituted for the conventional deductive method now in vogue.

Dr. Kraetzer ably and concisely demonstrates and discusses his method in the chapters on inspection, palpation, percussion and auscultation. The reviewer was greatly impressed with the practicability and simplicity of this method.

The author considers "diminished intensity of breath sounds" of such great diagnostic value that he devotes a long chapter to the subject, discussing the underlying etiologic and pathologic phases in minute detail. The chapter on rales and the one on pulmonary tuberculosis, while interesting, do not present anything new. The author contends that pleurisy with effusion is a specific physical sign of tuberculosis and means tuberculosis in 100 per cent of the cases, a view which is not unanimously accepted.

While a few of the statements made by Kraetzer are highly dogmatic, the book on the whole is excellent and should be of great aid to the medical student, the teacher of physical diagnosis, and to the general practitioner. H. I. S.

**COLLECTED PAPERS OF THE MAYO CLINIC AND THE MAYO FOUNDATION.** Edited by Mrs. M. H. Mellish, Richard M. Hewitt, B.A., M.A., M.D., and Mildred A. Felker, B.S. Volume XXI, 1929, published May, 1930. Philadelphia and London: W. B. Saunders Company. 1930. Price \$13.00.

In the 1200 pages of this new volume are crowded so many interesting articles on a wide variety of subjects that the reviewer can simply cite some that appealed to him. The editors had 471 papers from which to make selections. Of these 90 are reprinted in full, 23 are abridged, 68 are abstracted, while references only are given to 290.

The book opens with an abstract of Moersch's statistical study of the treatment of carcinoma of the esophagus by dilatation with the Plummer sound. Balfour discusses dyspepsia and ulcers of the posterior duodenal wall, Bollman and Mann tell of further work on the physiology of the liver, and Kirklin writes on cholecystography. Intestinal physiology and various bowel lesions are presented interestingly by Alvarez and Hosoi, Brown (parasites) and Barger (tuberculosis), while several surgical papers of Rankin are reproduced. The selection of diuretics

by Rowntree, several articles on goiter by Pemberton, surgical aspects of diseases of lymphoid organs by W. J. Mayo, work on sympathetic ganglionectomy by Adson and on anesthesia by Lundy, are all subjects with which the writers have had abundant experience.

To those unfamiliar with the scope of Mayo Clinic activities, this resumé will serve as a summary of their numerous contributions to medical progress; the initiated will be afforded glimpses of some hours of profitable reading. P. S. L.

**GNOCOCCAL INFECTION IN THE MALE.** By Abr. L. Wolbarst, M.D., Urologist and Director of Urologic Clinics, Beth Israel Hospital, New York, etc. Second edition, completely revised and enlarged. With one hundred forty illustrations, including seven color plates. St. Louis: The C. V. Mosby Company. 1930. Price \$5.50.

The second edition of this book is a decided improvement upon the first and it needs no gifted perspicacity to predict that there will be many more editions, for, in the opinion of the reviewer, it is the best and most comprehensive work on the subject in any language.

Dr. Wolbarst believes that gonorrhea is a constitutional and not a local disease; that it is cured only by the "inherent reparative forces of the individual acting through the blood stream"; that, while there is no specific remedy known for the malady, much comfort can be given and in a majority of cases cure obtained by proper systemic local and constitutional treatment; that the diseased individual is not a criminal and, although afflicted with a highly contagious and crippling disease, is entitled to and should receive kindly consideration and the gentlest treatment. In fact, throughout the volume the watchword is "gentleness."

The author shows how to furnish and equip an operating room for the treatment of gonorrhea and explains explicitly the methods, instruments and remedies which he has found best in his large experience.

This is a very valuable book; everything in it is strictly up-to-date and it cannot be too highly recommended. Although written for the general practitioner no urologist can afford to be without it. It is neatly bound in cloth, printed in clear large type on good paper, well illustrated throughout and has a reliable index. A. R.

**THE CHEST: Roentgenologically Considered** (Annals of Roentgenology, Volume XI). By L. R. Sante, M.D., F.A.C.P., F.A.C.R., Professor of Radiology and Director of Department, St. Louis University Medical School, etc. Three Hundred Seventy-Six Roentgen Ray Studies and One Hundred Sixty-Three Clinical Illustrations. New York: Paul B. Hoeber, Inc. 1930. Price \$20.00.

It is fine to have a new book by a native son that can be reviewed in superlative terms. Dr. L. R. Sante is the son of a Missouri physician and was educated in Missouri. He has worked faithfully and earnestly in radiology and is now enjoying clinical and professional duties as outlined above under his name. Dr. Sante has contributed extensively to the roentgen journal literature upon pulmonary conditions, the best known of which are his original contributions upon massive collapse of the lung. Dr. Sante has always presented splendid papers before the Missouri State Medical Association and now the medical profession of Missouri is honored by the production of such a fine, splendid,



complete and scientific volume upon clinical radiology of the chest.

Dr. Sante has enjoyed some unusual opportunities in radiology because of medical staff cooperation in the serial study of pneumonic pathology. At one of his hospitals it is a routine to radiograph the chest of each admission. Thus has Sante profited by persistent and enthusiastic staff cooperation and in turn the reader of this volume profits by these rather ideal situations.

Sante has adopted a plan similar to Butler's "Diagnostics of Internal Medicine" for the presentation of the differential roentgen ray diagnosis of chest conditions.

This elaborate volume is a fine addition to the annals of American roentgenology. The author offers this book as an aid in interpretation for the clinician and a compilation for the guidance of roentgenologists and it thoroughly completes the job.

Part I deals with the chest as a whole from the roentgenological standpoint and gives a very complete description of the anatomy of the chest and of different technics used in arriving at a diagnosis.

In chapters 8 and 9 the hilum and peribronchial shadows are discussed in a manner which will be helpful to the internist as well as the roentgenologist. Bronchiectasis is dealt with thoroughly and comprehensively. Different conditions and diseases of the chest are discussed in detail in the chapters following. The trachea, thymus gland and diaphragm are given studied consideration and much valuable information is offered the reader. On the whole, I consider this book a masterpiece. C. O. D.

**ANATOMY.** By George W. Corner, M.D., Professor of Anatomy in the University of Rochester. Illustrated. New York: Paul B. Hoeber, Inc. 1930. Price \$1.50.

This is one of a series of interesting booklets which have the muse of history, Clio, for their godmother. Several of these have already appeared. Others will be published in the near future.

This one on anatomy devotes three successive chapters to its history from ancient and medieval times to the present. One chapter is given to the history of histology, embryology and neurology. Practically all men who have contributed something to our knowledge of these subjects are at least mentioned and most of the proper names attached to the various structures of the body are found here.

"Current Trends in Anatomy" might interest even those who are not concerned with the history of anatomy but who are interested in present-day matters.

With its "List of Sources" and numerous references this book is almost certain to stimulate a desire to be better informed with the details of the many incidents mentioned.

The book is written in an easy, interesting style and contains far more information than one usually finds in such a small volume. R. E. S.

**A TEXTBOOK ON ORTHOPEDIC SURGERY.** By Willis C. Campbell, M.D., F.A.C.S., Professor of Orthopedic Surgery, University of Tennessee, College of Medicine, etc. Illustrated. Philadelphia and London: W. B. Saunders Company. 1930. Price \$3.50.

The author states that the book is written as a text for students, general practitioners and surgeons. The direct simplicity in which it is written is suggestive of the style of the matchless Osler. Campbell

very properly begins with a brief outline of the scope of bone and joint surgery and the mechanics of function. He discusses in detail the method of making physical examinations, emphasizing the point that it is the patient's body and not the patient's clothes that are to be investigated. There is a tendency among many doctors to be content with inadequate physical examinations. Acquaintance with this chapter should stimulate more thoroughness in arriving at a minutely correct diagnosis before treatment is undertaken.

The chapter on apparatus is very interesting and should be especially helpful to the general practitioner in prescribing apparatus. The subsequent chapters take up severally the various bone and joint affections after the accepted manner of medical writings, considering etiology, pathology, symptoms, diagnosis, prognosis and treatment, both operative and nonoperative.

The chapter on ankylosis is one of the most instructive in the book, a subject on which the author speaks "with authority and not as the scribes." He goes into detail of the technic of arthroplasty of the knee, for which he is famous, as well as that of the other joints in which mobilization is undertaken surgically. A short but excellent chapter on traumatic arthritis is given.

Unlike most texts on orthopedic surgery he has included a very thorough chapter on dislocation and one on fractures. This part is especially valuable since the increasing speed and the number of automobiles have brought traumatic surgery in increasing volume to every doctor, rural or urban.

In the chapter on "Constitutional Affections of Bones" osteomyelitis is the only subject discussed that can be considered common. The more rare conditions are given space according to their importance. This is followed by a chapter on bone tumors.

Under "Affections of the Soft Tissues" he discusses scar and the accepted treatment for contractures, Dupuytren's contractures, Volkmann's paralysis, skin grafts, etc.

Affections of the nervous system including chiefly anterior poliomyelitis, cerebrospastic paralysis, spina bifida, progressive central muscular atrophy, are discussed with the indicated treatment.

The chapter on "Static Deformities" is especially interesting and worthy of study, as this is a common and neglected field. The final chapter on "Congenital Deformities" is short and to the point.

The reviewer has gotten a bit discouraged with buying books, but this is one text that every general practitioner and surgeon should have at hand. It is a most welcome consultant. J. R. E.

**OBSTETRICS FOR NURSES.** By Joseph B. DeLee, A.M., M.D., Professor of Obstetrics and Gynecology, University of Chicago; Obstetrician to the Chicago Lying-In Hospital and Dispensary. Ninth edition. Revised and reset. Philadelphia and London. W. B. Saunders Company. 1930. Price \$3.00.

With great patience DeLee covers the field of nursing as it applies to obstetrics. He always remembers that the student nurse is preparing to be a nurse, not a doctor.

His chapters on the hygiene of pregnancy and on prenatal nursing are illuminating. The whole book is extremely simple, practical, and to the point.

W. C. G.

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### DISEASES OF THE MALE BREAST\*

M. PINSON NEAL, M.D.

COLUMBIA, MO.

AND

BURTON T. SIMPSON, M.D.

BUFFALO, N. Y.

The various diseases of the human breast are quite well known and understood because of the many studies that have been made on the female breast, which is a common location for pathologic changes. The male breast has received very little attention. Lesions of the male breast are generally considered few and rare yet they constitute from two to three per cent of all the breast diseases which afflict both sexes. The male breast may be the site of any of the diseases that are found in the female breast, and are indistinguishable from the similar diseases more commonly found in the female organ.

This report is based upon a pathologic study and comparison of a series of 5,000 breast lesions in 46,744 specimens that were submitted to the State Institute for the Study of Malignant Disease, Buffalo, N. Y., during the period 1900 to 1925, and 314 breasts from 7,686 specimens that have been examined in the Department of Pathology of the University of Missouri School of Medicine, Columbia, from August 1, 1922, to March 22, 1930. In order to obtain a uniform terminology, the regrouping and classification of the specimens has been made entirely by one of us (M.P.N.), who has also checked, studied and restudied all the male breast specimens.

This study represents cases coming to the surgeon and specimens actually submitted for diagnosis of breast lesions. It does not include cases of congenital or developmental anomalies and abnormalities, which we recognize as diseases in degree but are curiosities rather than something demanding the attention of the profession.

Of our reasons for making this report, three are worthy of enumeration, namely:

1. This essay records an exhaustive study in which the pathologic diagnosis has been the critical and conclusive feature in the unusually large series of 5,314 consecutive breast lesions. This record is based upon every specimen examined and is therefore representative of what one may expect to meet in the practice of the art of medicine.

2. To add information of a practical character to the summed-up knowledge of the diseases of the mammary gland, and to establish accurate evidence as to the prevalence and types of diseases of the male breast.

3. In order that the attention of the profession may be directed to the male breast as an organ that is the potential site of a number of diseases.

### FACTORS INFLUENCING THE DIFFERENT RATES FOR MALE AND FEMALE BREAST DISEASES

The question, why do breast diseases occur so rarely in man, can be answered, in part, by the arrest in its anatomical development at or before the age of puberty; by its atrophy at around the thirtieth year of life; or because it is not called upon for functional activity, as is the female breast. Apparently, there is no difference between the male and the female breast between the time of birth and the age of puberty. They both possess the same morphological elements and are not to be differentiated until at the beginning of puberty, when the female breast hypertrophies, its glandular tissue increases, the acini multiply, and there are formed milk ducts which lead to the nipple. The male breast at this age is only a rudimentary organ, and within a few years its glandular elements atrophy to, or almost to, the degree of practical disappearance from the histologic make-up of the organ.

The male breast is not subject to the hyperplasias and hypertrophies of the female breast, nor to the changes that occur with the establishment of puberty, the hypertrophies that occur with each pregnancy, the involution atrophy

\* Read at the 73rd Annual Meeting of the Missouri State Medical Association, Hannibal, May 12-15, 1930.



Table 1. Breast Hypertrophies, Inflammations, Cysts and Unclassified Cases Encountered in 5,314 Breast Specimens

Diagnosis	Number of Cases			Proportion Male to Female 0:5	On the Basis of 152 Male Breasts Examined Per Cent of Male Breasts	
	Total	Male	Female		Per Cent	Group Per Cent
Hypertrophy	5	0	5		0.00	0.00
Mastitis:						
Acute (abscess, etc.)	59	4	55	1:13.75	2.63	
Chronic	867	46	821	1:17.84	30.26	
Tuberculous	44	0	44	0:44	0.00	
Borderline, chronic, suspicious of malignancy	13	1	12	1:12	0.65	
Total Mastitis	983	51	932	1:18.27	33.55	33.55
Keloid	2	0	2	0:2	0.00	0.00
Cysts:						
Simple epithelial	43	1	42	1:42	0.65	
Papillomatous	20	0	20	0:20	0.00	
Galactocoele	3	0	3	0:3	0.00	
Sebaceous	9	1	8	1:8	0.65	
Epidermoid	12	1	11	1:11	0.65	
Total cysts	87	3	84	1:28	1.97	1.97
Paget's disease	12	0	12	0:12	0.00	0.00
Ungrouped	173 <sup>1</sup>	3	140	1:46.66	1.97	1.97

1. Includes 30 cases where sex was not given.

that follows the cessation of lactation; nor to the changes that occur at menopause. The male breast is not involved in the periods of congestion during a monthly menstrual cycle, nor to the erotic changes from handling, nor is it called upon to suckle the young. It is not subject to the infections incident to pregnancy, lactation and nursing.

Often the first and, not rarely, one of the chief manifestations of sex birth in the maturing girl, is the mammary congestion with the sense of fullness and the erection of the nipple. Subsequent to the age of puberty, these reactions are common as the result of fondling or even the close personal contact with members of the opposite sex. The male breast knows no such sensation or reaction, yet the female breast often goes through hours of such engorgement in modern days of automobiles, dark roadways, dances, moonlight nights, and so forth.

*Mammary Hypertrophy.*—True hypertrophy of the male breast, commonly termed gynecomastia, is more of an abnormality of morphology or physiologic function, or both, than of a surgical condition, as is evidenced by the

fact that no such case was seen in the group here reported.

*Acute Mastitis.*—(Acute mammary abscess, acute pyogenic mastitis, or acute exudative mastitis.) Acute suppurative inflammations of the male mammary gland are generally considered to be rare. They may be seen as abscesses or as diffuse infiltrations of pus, or the inflammatory reaction may not progress to the degree of suppuration.

Trauma plays an important role, for in most instances there is a history of some preceding injury. Acute inflammations of the breast may occur as descending infections complicating some of the acute infectious diseases, such as typhoid fever, mumps, pyemia, and so forth. If the lesion is localized and repair takes place by encapsulation the contents will become liquefied and a pseudocyst will be formed. In each of the four recorded cases there was tissue necrosis and other histologic findings typical of acute suppurative inflammation.

*Chronic Mastitis.*—Chronic mastitis, chronic interstitial mastitis, chronic lobular mastitis, chronic proliferative mastitis, chronic productive mastitis, chronic hypertrophic mastitis, chronic indurative mastitis, chronic sclerosing

Table 2. Benign Tumors of Breast From the Group of 5,314 Breasts

Diagnosis	Number of Cases			Proportion Male to Female	On the Basis of 152 Male Breasts Examined Per Cent of Male Breasts	
	Total	Male	Female		Per Cent	Group Per Cent
Benign tumors:						
Lipoma	28	6	22	1:3.66	3.94	
Fibroma	33	6	27	1:4.50	3.94	
Leiomyoma	3	0	3	0:3	0.00	
Adenoma and fibro-adenoma	1140	45	1095	1:24.33	29.60	
Fibro-adenoma cysticum	230	0	230	0:230	0.00	
Fibro-adenoma intracanalicular and pericanalicular	154	0	154	0:154	0.00	
Fibro-adenoma in supernumerary axillary breast	1	0	1	0:1	0.00	
Lymphangioma	2	1	1	1:1	0.65	
Hemangioma cavernosum	1	0	1	0:1	0.00	
Pigmented nevus	17	0	17	0:17	0.00	
Papilloma (skin)	18	1	17	1:17	0.65	
Adenoma sebaceum	1	1	0	1:0	0.65	
Total benign tumors	1628	60	1568	1:26.13	39.47	39.47

Table 3. Malignant Tumors of Breasts Among the 5,314 Recorded Specimens

Diagnosis	Number of Cases			Proportion Male to Female	On the Basis of 152 Male Breasts Examined	
	Total	Male	Female		Per Cent of Male Breasts	Per Cent Group
Malignant tumors—A. Sarcoma:						
Fibrosarcoma.....	22	4	18	1:4.50	2.63	
Lymphoblastic and lymphocytic	11	1	10	1:10	0.65	
Melanosarcoma.....	2	0	2	0:2	0.00	
Myosarcoma.....	2	0	2	0:2	0.00	
Liposarcoma.....	1	1	0	1:0	0.65	
Chondromyxosarcoma.....	1	1	0	1:0	0.65	
Total sarcomata.....	39	7	32	1:4.57	4.60	4.60
B. Carcinoma: 1. Skin type:						
Melanocarcinoma.....	1	1	0	1:0	0.65	
Nevus cell carcinoma.....	2	1	1	1:1	0.65	
Basal cell carcinoma.....	11	1	10	1:10	0.65	
Squamous cell carcinoma.....	14	0	14	0:14	0.00	
Total skin carcinomata.....	28	3	25	1:8.33	1.97	1.97
2. Duct and glandular cell						
carcinoma.....	2355	25	2330	1:93.2	16.44	16.44
C. Endotheliomata.....	2	0	2	0:2	0.00	0.00
Total malignant tumors.....	2424	35	2389	1:68.25	—	23.02

mastitis, chronic diffuse interstitial mastitis, and chronic induration of the breast, are terms used by various writers to designate chronic enlargement of the breast, brought about largely by an increase in the fibrous connective tissue, and generally presumed to be a type or a manifestation of chronic inflammation.

Chronic mastitis may follow acute mastitis as organization of an exudate, or as a localized sclerosing repair process, or it may be primarily a chronic inflammation from the onset. It may be diffuse, giving an enlargement of the breast (chronic hypertrophic mastitis), or it may occur in local, single or multiple areas, giving a hard nodule or nodules, and often is painful. Since the male breast is not a secret- ing organ, chronic cystic mastitis is a rare find- ing, whereas in the female it is common.

The areas of mastitis are a part of the breast and are often not encapsulated as are new growths. Histologically, the presence of "re- active" or inflammatory cells, the definite sclerosed areas, and above all, the mixture of adipose tissue in the areas with glands, cystic dilatations and the overgrowth of connective

tissue, are the deciding points between this con- dition and the types of adenoma. It frequently is impossible to differentiate histologically be- tween a chronic mastitis, where there is an epithelial hyperplasia, and a cystadenoma with a superimposed chronic inflammation; but since both are benign processes and are treated in a like manner there is little practical value in their absolute differentiation.

In the group of 152 male breasts here re- corded, there were forty-seven (one border- line, suspicious of malignancy) cases of chronic mastitis, or 30.92 per cent. In comparison to the female breast this is a proportion of almost one to nineteen.

*Tuberculous Mastitis.*—Swan and Fry,<sup>1</sup> in 1926, tabulated eleven cases and reported the twelfth case of tuberculous mastitis in the male subject. We failed to encounter a single case in the male although there were forty-four cases of tuberculosis in the 5,132 female breasts.

*Keloid.*—No case of keloid was found among specimens from male subjects, though two were found in specimens from female patients.

Table 4. Summary of the 5,314 Breast Cases

Diagnosis	Number of Cases			Proportion Male to Female	On the Basis of 152 Male Breasts Examined	
	Total	Male	Female		Per Cent of Male Breasts	Per Cent Group
Hypertrophy.....	5	0	5	0:5	0.00	
Mastitis <sup>1</sup> .....	983	51	932	1:18.27	33.55	
Keloid.....	2	0	2	0:2	0.00	
Paget's disease.....	12	0	12	0:12	0.00	
Cysts <sup>1</sup> .....	87	3	84	1:28	1.97	
Benign tumors <sup>2</sup> .....	1628	60	1568	1:26.13	39.47	
Ungrouped cases.....	173 <sup>4</sup>	3	140	1:46.66	1.97	
Total benign lesions.....	2890 <sup>4</sup>	117	2743	1:23.44	76.97	76.97
Malignant tumors <sup>3</sup>						
A. Sarcomata.....	39	7	32	1:4.57	4.60	
B. Carcinomata						
1. Skin type.....	28	3	25	1:8.33	1.97	
2. Duct and gland cell types	2355	25	2330	1:93.2	16.44	
C. Endotheliomata.....	2	0	2	0:2	0.00	
Total malignant tumors.....	2424	35	2389	1:68.25	23.02	23.02
Total cases.....	5314 <sup>4</sup>	152	5132	1:33.76	Per cent of male cases — 2.86	

1. For detailed grouping of mastitis and cysts see Table 1.  
2. For detailed grouping of benign tumors see Table 2.  
3. For detailed grouping of malignant tumors see Table 3.  
4. Includes 30 cases where sex was not given.



One of these occurred on the breast of a thirteen year old Negro girl in the scar following a burn.

*Paget's Disease.*—No case of Paget's disease was found in the group of 152 male breasts here recorded, though twelve cases of this somewhat rare condition were found in the female breasts.

*Cysts.*—The male breast being a functionless organ is not subject like the female gland to the retention of products of an active secreting epithelium. The literature abounds with statements of the fact that cysts in the male breast are infrequent. In the formation of cysts there are two usual processes which give them their origin:

1. The formation of new glands, as in adenoma, that do not connect with ducts; hence, if there is physiologic cell activity, the products are retained. This type is herein classed as fibro-adenoma cysticum, and not under the general head of cysts.

2. Glands that are present may have their excretory ducts constricted, stenosed, or occluded by inflammatory processes, by cellular hyperplasias, by scar tissue constrictions, or by the pressure of tumors, and so forth.

The infrequency of cysts in the male breast is well proved in this series of 152 cases, where there were seen only three cases of cysts, and but one of these was in the breast proper (*corpus mammae*), a percentage of 0.65. The other two were of skin origin, one being a sebaceous cyst the other an epidermoid cyst.

*Ungrouped Cases.*—Under this heading are listed 173 cases, in thirty of which the sex of the patient was not given. The remaining 143 cases, three of which were males, comprise a group in which no breast tissue was found (where it was improbable that the tissue present was from the mammary gland), no diagnosis rendered, tissue apparently normal, insufficient material, autolyzed or necrotic tissue, questionable diagnosis, and so forth.

To group the fifty-one cases of mastitis and the three cases of cysts, there is obtained a total of fifty-four cases, or 35.52 per cent of the diseases of the male breast that definitely do not belong to the neoplastic group. If the three ungrouped cases are eliminated from consideration the percentage would be higher by 1.97 per cent.

#### BENIGN TUMORS

*Lipoma.*—These new growths of typical adipose tissue may be of large size. They are, as a rule, well circumscribed and encapsulated. They must be differentiated from hypertrophies and, because of fluctuation on palpation, are often thought to be cysts. They are easily diagnosed by histologic examination. In one

of the six cases in the male subjects there were gross and microscopic areas of typical fat necrosis.

*Fibroma.*—Pure fibromas are not common in the breast. Though six, or 3.94 per cent, of our male breasts were so classified, all of them showed scant amounts or rudiments of epithelial elements. They exhibit the same gross and histologic features of similar tumors elsewhere, except for the presence of scant and usually compressed epithelial structures. Soft and hard varieties were observed and all were well encapsulated. Except where they are made up only of fibrous tissue, they probably should be classed with the adenofibromata.

*Adenoma and Fibro-Adenoma.*—Tumors composed of glandular acini in typical though crude form, or ducts of typical histologic structure surrounded by varying quantities of connective tissue, comprise forty-five of the cases, or 29.6 per cent, though Karsner<sup>2</sup> says they are distinctly unusual in the male breast. These tumors are generally diagnosed as fibro-adenoma or adenofibroma, for a pure adenoma is very rare even in the female breast. They may be single or multiple, as a rule grow slowly, are circumscribed, generally well encapsulated, firm or soft, and freely movable. The glandular and duct cells as well as the supporting connective tissue enter into the growth of these fibro-epithelial (organoid) tumors. The soft varieties have a more cellular connective tissue, like fibroma molle, or even myxomatous in character, and often have more of the glandular elements present. The firm types have a more mature fibrillated connective tissue and as a rule less of the glandular elements.

As stated under chronic mastitis, there are specimens where it is well-nigh impossible to determine whether one has a fibro-adenoma or a chronic mastitis. It is probable that many cases diagnosed as tumors of this type are in fact instances of chronic inflammatory changes. From our observations it seems the tendency is to call them tumors rather than otherwise.

*Fibroma-Adenoma Cysticum.*—Cystadenoma, cystic adenoma, cystic fibro-adenoma, cystic disease of the breast, or papillary cystadenoma.

These terms have been variously used to designate a tumor of the fibro-adenoma type in which cystic spaces develop. These cystic areas can be explained largely on the basis that the new formed acini have no connections with ducts therefore if there is secretion it is retained to the degree of causing cystic dilations. These are nearly always multiple and of small size, though they may be large. Since the male breast normally has no acini and its adenomatous growths are essentially of duct type epithelium, which is not secretory in

character, cystic changes in the male breast should be rare. Our findings very strongly support that belief, for no case of fibro-adenoma cysticum was seen in 152 male breasts, whereas, there were 230, or almost 4.5 per cent, in the female breasts.

*Intracanalicular Fibroma, Pericanalicular Fibroma.*—Intracanalicular fibro-adenoma and pericanalicular fibro-adenoma. Cystic fibro-adenomas are often distorted by fibrous tissue elements pushing into the lumen of a dilated duct or acinus, giving intracanalicular types. Sometimes the connective tissue forms a cuff surrounding the duct without growing into its lumen and gives what is termed pericanalicular fibroma. Both types must be rare in the male breast for neither form was found while there were 154 instances, or 3 per cent, in the specimens examined from females.

*Lymphangioma.*—Angiomata of blood vessel origin are given as being more common than those of lymph vessel origin. In this group there was one case of angioma in each, a male and a female breast. These were typical of lymphangioma as seen elsewhere. Deaver and McFarland<sup>3</sup> state they found a single reference to lymphangioma of the breast in their examination of the literature.

*Papilloma (Skin) and Adenoma Sebaceum.*—One case of each was found in this group of male breasts. They represent lesions of the skin, or a part of the skin, the sebaceous glands. They did not differ from like lesions that might be found at any other part of the body.

Of the total of sixty benign tumors of the male breast (39.47 per cent), the outstanding features are, (1) the high percentage of the adenoma and fibro-adenoma group; (2) the absence of the mixed types of fibro-adenoma, as the intracanalicular and pericanalicular forms, and the absence of cystic changes.

#### MALIGNANT TUMORS

*Sarcoma.*—Most authorities agree that sarcoma of the male breast is a rare finding. Only thirty-four male breast sarcomas were recorded up to 1907.<sup>4</sup> Spindle cell sarcoma has been the most frequent type reported. In this recorded group of seven sarcomas (atypical histioid tumors) found in the male breast, four belong to the spindle cell type (fibrosarcoma). One was of small round cell type (lympho-sarcoma), one a liposarcoma, and one a chondromyxosarcoma. The sarcomas comprise 4.6 per cent of the 152 male breast diseases studied, and 20 per cent of the malignant male breast tumors.

*Carcinoma.*—Carcinomas are here divided into two general primary types: (a) Those that originate in the skin, and (b) those arising

from corpus mammae proper, and are duct cell or glandular cell in character.

a. *Skin Type Carcinoma.*—Atypical epithelial tumors arising from the skin over the mammae are not common as compared to those arising from the duct or acinal epithelium of this gland. In the 152 diseases of the male breast here recorded there were thirty-five cases of malignant tumors; of this number only three were of skin origin. One of these was a true basal cell carcinoma that showed all the features of a rodent ulcer. The other two were of the type most often seen arising at the site of a nevus and develop into atypical growths that are termed nevus cell carcinoma. One of these was so heavily pigmented that it was termed melanocarcinoma (it might have been called pigmented nevus cell carcinoma) in contradistinction to the other which contained practically no pigment.

b. *Duct and Glandular Cell Type Carcinoma.*—Atypical fibro-epithelial (organoid) tumors that arise from the cells lining the ducts or acini are here grouped together. In this group of 2,355 carcinomas of the breast that were examined only twenty-five, or 1.06 per cent, were from male subjects,—or 16.44 per cent of the total of 152 male breasts were in this group. Here are recorded all forms of duct and glandular cell carcinomata, as, medullary carcinoma, scirrhous carcinoma, carcinoma simplex, adenocarcinoma, papillary adenocarcinoma, colloid carcinoma, mucoid carcinoma, and so forth. The tumors so grouped here conform to the same types as occur in the female breast, except that there was found little effort at acinus formation and cystic changes were not seen.

These atypical fibro-epithelial tumors arising from an organ of such a complexity of tissues, with wide variations of tissue functions and embryologic origin, show a diversity of gross and histologic architecture. This has caused much confusion in the nomenclature of these tumors, as evidenced by the large number of names applied by various writers.

*Endothelioma.*—As the typical benign tumors of vessel origin, the angiomata are to be found in the breast; so are their atypical malignant prototypes, the endotheliomata. While in this study there are recorded two cases of endotheliomas in female breasts, none were found in the specimens from males.

#### PREVALENCE (AND SUMMARY) OF DISEASES OF THE MALE BREAST

A. This group of 152 male breasts represents those found among 5,314 breasts en-



countered in 54,430 specimens routinely submitted for pathologic diagnosis. The group comprises 2.86 per cent of the total number of breasts, and 0.279 per cent of the total number of specimens.

B. The diseases found in this group of 152 male breasts follow:

1. Fifty-one, or 33.55 per cent, were cases of mastitis. (Acute mastitis four cases, or 2.63 per cent; chronic mastitis forty-seven cases, or 30.92 per cent.)

2. Three, or 1.97 per cent, were cysts. Of these only one, or 0.65 per cent, arose in the breast proper.

3. Fifty-four (sum of 1 plus 2), or 35.52 per cent, were non-neoplastic diseases.

4. Sixty, or 39.47 per cent, were benign tumors (or 65.15 per cent of all tumors).

5. Thirty-five, or 23.02 per cent, were malignant tumors (or 36.84 per cent of the neoplasms) divided as follows: (a) Sarcoma seven cases, or 4.6 per cent. (Or 20 per cent of the malignant tumors.) (b) Carcinoma of skin origin three cases, or 1.97 per cent. (c) Carcinoma of duct or acinus origin twenty-five, or 16.44 per cent. The twenty-eight cases of carcinoma represent 80 per cent of the malignancies.

6. Ninety-five (sum of 4 plus 5), or 62.5 per cent, were true neoplasms.

7. Three, or 1.97 per cent, were ungrouped cases.

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#### DISCUSSION

DR. F. G. NIFONG, Columbia: One of the speakers in the symposium mentioned that there are two kinds of lies, ordinary lies and statistics. I wish to call attention to the fact that Dr. Neal's paper is not merely a presentation of statistics, but is a survey really worth while and will be of importance in the future. When you read *THE JOURNAL* in which this will be published you can digest it more profitably than you do now. When one knows the man, the particular variety of individual who is furnishing the statistics, one can appreciate what they mean. I happen to know the statistician here, or rather the surveyor, and when anything is said about a pathologic condition one can depend on his veracity. In other words, he is dependable and the survey of his subject is so excellent that it is worth while for future study.

The rarity of diseases of the male breast he has mentioned. It appears that approximately two-thirds of these conditions are benign or of inflammatory origin, and one-third malignant. In a general way that is all we need to carry away for the very few breast conditions we see in the male.

Then we notice two kinds of malignancy in the male breast, one-fifth are sarcoma and four-fifths carcinoma. A little farther in the analysis we note there is about one breast tumor in the male to one hundred in the female. In a general way that is what this analysis will disclose. It is somewhat illuminating to note what would be contributory causes to tumors, particularly the malignant ones. This was beautifully brought out in the discussion of the function and dysfunction of the sex reflexes in the male breast as a distinct entity in the procreative organs, and the absence of any function in the male breast. That is important because whatever the contributory cause malignancy is the important factor. Particularly is this brought out in the comparison between the male and the female breast.

## CYST ADENOMA OF THE PANCREAS

### REPORT OF A CASE\*

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Some pancreatic cysts are readily accessible to successful surgical attack but the incidence of true proliferating cystoma of the pancreas is infrequent. We found but twenty-five in the literature. Of all the cystic tumors of the pancreas, this type is the most easily removed. In addition to the symptoms which their presence alone initiates the possibility of malignant transformation of these tumors is of some importance. Moreover, other untoward complications may arise which render them somewhat dangerous. We feel that the infrequency of these tumors, the interesting pathologic picture which they present, and the ability to remove them successfully warrant incorporating this case in the literature.

### REPORT OF CASE

The patient was an unmarried woman, a florist, aged 40, first seen by us Dec. 27, 1929. About three years ago she noted a swelling in the upper left quadrant of her abdomen. A physician told her the swelling was an enlarged spleen, which enlargement was due to a leukemic infiltration. She was given tonics and general care and told that she did not have many years to live as leukemia was always a fatal disease.

About two months prior to admission to the hospital she consulted another physician who found a tumor about the size of a large canteloupe in the upper left quadrant of the abdomen. The patient at this time gave a history in which her only complaint was the size of the tumor. She had neither lost weight nor had pain. The tumor was freely movable, painless and somewhat cystic to palpation. At this time a diagnosis of retroperitoneal cyst was made and she was referred to one of us for operation. She entered the hospital on June 3, 1930,

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Fig. 1. Photomicrograph of cyst wall showing tall columnar epithelium resembling lining of pancreatic ducts. Mag. X 450.

and the operation was performed the next day.

At operation a cyst was discovered separating the mesentery of the transverse colon, displacing the latter to the level of the umbilicus. A good line of cleavage was found with comparatively little difficulty. After draining off approximately 300 c.c. of dark, brownish, mucilaginous fluid the tumor was removed from the tail of the pancreas.

**Gross Pathology.**—The specimen is a large, round, slightly lobulated cyst measuring 22 cm. in diameter. The capsule is tough and thick and is covered with shaggy adhesions and tags of fat. One side of the capsule has incorporated in it a dark brown mass 6 cm. long and 4 cm. in diameter which is indurated and fibrotic in consistency. On section the mass is made up of deeply pigmented, inflammatory, fibrous tissue which is quite edematous. The main cavity is filled with a dark brown, sticky, mucinous-like fluid and the cyst is roughly divided in about two



Fig. 2. Photomicrograph of a daughter cyst showing low grade inflammatory reaction in wall and secretion into cystic cavity. Mag. X 125.

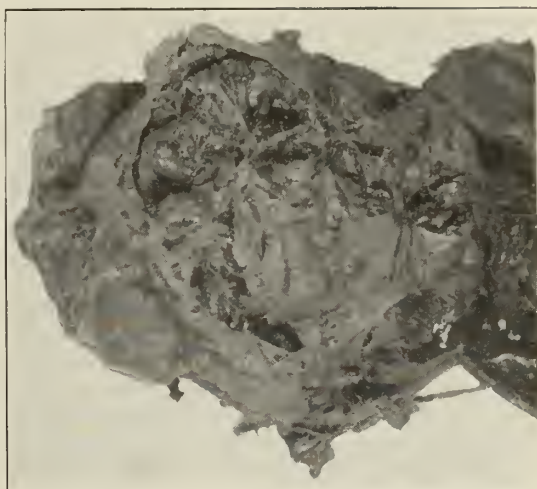


Fig. 3. Cyst opened showing the cavity about half filled with varying sized daughter cysts.

parts, one part being a large cystic cavity the other composed of a mass of smaller compartments varying from .5 to 5 cm. in diameter. Their content ranges from a rather clear, mucinous-like substance to bloody and creamy, sticky fluid. No gross papillation is seen in any of the cysts.

**Microscopical Pathology.**—Sections taken from different regions in the cyst wall all show similar pictures. The cysts are lined by tall cuboidal epithelium with basely located nuclei. The cell cytoplasm is abundant, and in some region there is a tendency to overgrowth of the epithelial cells. The walls of the cyst show considerable hemorrhage in places.

A section through the mass of tissue embedded in the wall shows nothing but old inflammatory fibrosis with a very large number of big cells loaded with blood pigment. Careful search through the wall of the cyst fails to reveal any pancreatic tissue.

**Chemical Examination.**—The fluid content of this cyst shows the presence of amylase and a faint trace of trypsin. No steapsin is present.

The patient left the hospital June 29, 1930.

**Postoperative Note.**—After returning home she had a period of anorexia, epigastric discomfort, and nausea after eating, lasting approximately four days, which cleared up with the administration of dilute hydrochloric acid. Since then she has been perfectly well.

#### COMMENT

Cyst adenomas are true neoplastic, proliferating, cystic tumors. They may be single or multiple and are quite rare. They occur anywhere in the pancreas, usually however at the head or tail, and are as a rule of slow growth. They may at times undergo malignant transformation, and papillary metastases of these tumors have been reported.

According to Mueller and Hueper these cysts are as a rule surrounded by a dense, fibrous capsule in which pancreatic tissue and ducts are frequently encountered. They are almost always lined by cuboidal or columnar epithelium, which is said to originate from the



epithelium of the pancreatic ducts. The cysts contain a fluid of variable character the reaction of which is alkaline. In color and consistency this fluid may be clear, turbid, bloody, foamy, brownish or yellowish, serous, mucoid or jelly-like in character. The specific gravity usually ranges from 1010 to 1015. The fluid may contain mucous, fat, urea, urobilin, casts, cholesterol and hemoglobin crystals, red cells, pigmented scales, necrotic pancreatic tissue and soapy masses. Of interest is the fact that pancreatic ferment may be present. This is, however, not always true.

When these ferments are found they may at times be of considerable diagnostic significance. The usual enzymes present are steapsin and amylopsin. Since the pancreas secretes trypsinogen, which requires enterokinase to transform it into trypsin, the latter ferment is not usually found in these cysts. The majority of the cysts reported have been smaller than ours. However, Alivestos has described a cyst which almost entirely filled the abdominal cavity and contained twenty-two liters. Many complications due to size and pressure have been observed in cases in which these cysts were present, such as hydronephrosis and anuria, pressure on the stomach with vomiting, constipation from intestinal pressure and pressure on the portal vein with ascites.

In addition to the pure cystomas Mueller has divided pancreatic cysts into five additional groups, namely, (1) dystontogenetic cysts resulting from a disturbance in embryonal development; (2) retention cysts arising from a blockade of the duct by stone, fibrosis and other conditions; (3) pseudocysts which are produced as a result of degenerative or suppurative processes in the pancreas and subsequent autolysis; (4) traumatic blood cysts resulting from direct trauma and hematoma formation; (5) echinococcus cysts.

#### DIAGNOSIS

*Differential diagnosis* between many of these cysts is difficult, or even impossible. In reviewing our postmortem material for the past two years we have noted two cases which were found in the course of routine necropsy examination. Both cases were patients of Dr. E. Lee Miller, who was kind enough to lend us his records for study. In both instances the patients were women past middle age with common duct stone. In one, the tail of the pancreas contained several thin-walled cysts filled with clear serous secretion, and represented the retention type previously mentioned. There was dense fibrosis in the pancreas as a result of an old pancreatic inflammatory reaction. The other patient had an acute, ascending, suppurative cholecystitis with multiple liver

abscesses, and many abscesses and areas of fat necrosis throughout the pancreas. Some of these necrotic areas in the pancreas had undergone autolysis and thus formed pseudocysts. These pockets were filled with autolytic debris and inspissated soaps.

*Clinical Diagnosis.*—There are no pathognomonic signs or symptoms diagnostic of these tumors. Usually the patient complains of epigastric pain, colic and stomach and intestinal upsets. Eventually, they may present the picture of ileus. Palpation of the cystic tumor in the upper abdominal segment should bring to mind the possibility of the pancreatic cyst. Roentgen ray examination, with the stomach filled with air, frequently shows a smooth filling defect from extrinsic pressure. Freedom from other organs in this region also tends to clarify its location. If the tumor interferes with the internal secretion of the pancreas, hyperglycemia and glycosuria may occur. Differentiation from a kidney tumor may be aided by ureteral catheterization. Among those cystic tumors of the abdomen which must be kept in mind in a differential diagnosis are cysts of the spleen, omentum, mesentery, liver, kidney and ovary. Cystic degeneration of lymph glands and solid abdominal tumors and abdominal aneurysm must all be considered.

*Prognosis.*—Some of the untoward complications which may follow an untreated cystic tumor of the pancreas are perforation, peritonitis, suppuration in the cyst, carcinomatous and sarcomatous changes, and large intracystic or extracystic hemorrhages caused by vascular erosion.

*Treatment.*—Several methods of treatment have been attempted. The lowest mortality has followed their complete extirpation.

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### HEMIPLEGIA; ITS CAUSES AND TREATMENT \*

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Hemiplegia is an age-old disease. Palsies and paralysis have always been with us. Yet it is surprising how little the great mass of the profession really understands of a symptom complex that is so well known and has been so carefully studied as to etiology and anatomy. Frequently we hear that the lesion in syphilitic hemiplegia is called a hemorrhage. Tumors are seldom recognized as a common cause of hemiplegia, while thrombosis, or arterial occlusion leading to softening of the brain, is seldom even considered by many physicians. It is the purpose of this short ar-

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ticle to show the interrelationship of the common causes of hemiplegias and their treatment.

Hemiplegia is only a symptom complex; it is not a disease entity. It always results from the destruction of the upper motor neuron, leading to uncontrolled activity of the lower motor neuron. The symptomatology is clear cut. There is a complete homolateral paralysis of all the voluntary muscles of one side or the other, except certain muscles supplied by some of the cranial nerves, namely, the third, fourth, fifth, sixth, upper seventh, ninth and tenth. Very early, even these may be affected but their function returns soon as they have a bilateral cerebral control. The reflexes are increased, the tone is increased, and motion of both upper and lower extremities is decreased or lost. Certain pathological reflexes, such as the Babinski and associated reflexes in the lower extremities and thumb flexion signs in the upper extremities, are present. Ankle and patellar clonus are usually obtained. There are no fibrillary twitchings or tremors, myo-

hemiplegia resulting from a lesion above the midbrain, that is, in the internal capsule and the cortex. We will also discuss only motor symptoms and not sensory, psychic, ocular or other symptoms that might result from these various lesions. These other symptoms are only of importance in localizing operable space-taking lesions, such as abscesses, tumors, gummas, etc., and are beyond the scope of this paper.

Etiologically, there are five great classes of lesions causing hemiplegia. We will first discuss them as to speed of onset, then frequency, and finally, prognosis. These factors are: Embolism, apoplexy or brain hemorrhage, thrombosis or arterial occlusion, infections, including syphilis, and tumors and other space-taking lesions. The English neurologists are famous for making phrases as an aid in remembering long lists of words. The first letters of the above words form the phrase "Eat it," which will be helpful in remembering the causes of hemiplegia in their proper relation of speed of onset.

Table 1.

Pathology	Speed of Onset	Accompanying Symptoms	Prodromes
Embolism	Few seconds	Unconsciousness usually	Other disease causing embolus
Apoplexy or hemorrhage	Several minutes to a few hours	Unconsciousness usually	Headache, dizziness, high blood pressure
Thrombosis	Few hours to several days	May or may not be unconscious	Headache, dizziness, high or low blood pressure
Infections including lues	Few days to weeks but may be less	Temperature, pulse, respiration changes, spinal fluid changes	Infections or luetic symptoms
Tumor and other space-taking lesions	Several months but may be minutes	Headache, vomiting, choked disk	Headache, vomiting, choked disk

edema is not present, atrophy other than that of disuse does not occur. There is only one thing to be said about these symptoms. It has already been mentioned, i. e., in regard to the cranial nerves. These nerves and the muscles they supply are usually affected very early in the course of this symptom complex, but in the fully developed condition they are usually not affected. This is a simple method for the practitioner to differentiate upper from lower motor neuron disease in the head. If these nerves are not affected, or their function returns promptly, it is upper motor neuron or cerebral disease. If they are affected from the outset and their function is permanently impaired it is lower motor neuron or nuclear disease. Of course other factors must always be considered.

Anatomically, the symptom complex of which we are speaking is limited to the region above the medulla. Below the medulla it is almost impossible to have a lesion giving only a one-sided complete paralysis without other symptoms due to the small size of the structures involved. But, for the purpose of brevity and clearness, we are going to discuss only

But, remember that this is not a rule, but rather a suggestion. Embolism is always very sudden and usually there is unconsciousness and in every case there is pathology in some other part of the body to give rise to the embolus. This is usually the heart valves or the endocardium, but it may come from the adnexa following operation, or may arise from some old thrombosis in other parts of the body from which an embolism passes through the lungs. The latter is rare but the second cause is common.

Apoplexy is relatively slow compared to embolism, taking several minutes before the symptoms reach their acme, and may even take hours. There is almost invariably high blood pressure from some other pathological condition as a background and in most cases it has been shown that minute aneurysms are the sites of these hemorrhages.

Thrombosis may come on very suddenly but is usually slow. In the type that is not luetic it occurs in the same type of case as apoplexy and, while a lower blood pressure is more likely to produce this condition, we have seen thrombosis in people with blood pressure as



high as 225 mm. mercury. The height of the pressure is of little diagnostic value; rather it is the condition of the vessel. If weak, hemorrhage is more likely. If the inner surface is covered with plaques, thrombosis is more common.

Infections will not be considered to any great extent in this paper because it is too large a subject, with many types. The syphilitic hemiplegia will be discussed later. Encephalitis is the most common of the other infections. Epidemic meningitis may produce hemiplegia and tuberculous meningitis frequently does. Abscesses, gummas and tuberculomas belong under the head of space-taking lesions, and will be discussed there.

Tumors and space-taking lesions of all kinds, including abscesses, gummas and tuberculomas, usually develop very slowly and the symptoms of hemiplegia caused by this type of pathology likewise come on slowly. The relative speed of the onset usually depends upon two factors, i. e., the type and the location of the lesion.

It is only natural that a lesion in the internal capsule would cause symptoms of motor involvement faster than an expanding lesion in the frontal lobe. But, if these lesions all started in the same location the symptoms developed from them would depend entirely on rate of growth. Listed in this order they are:

Table 2. *Space-Taking Lesions. Speed of Onset.*

Type of Lesion in Order of Rapidity	Frequency as Space-Taking Lesion	Frequency as Cause of Hemiplegia
Acute abscess	Common	Rare
Chronic abscess	Uncommon	Uncommon
Glioma	Common	Common
Spongioblastoma	Common	Common
Other types than medulloblastoma which is rare in the cerebrum	Uncommon	Uncommon
Tuberculoma	Rare	Rare
Gumma, macroscopic	Rare	Rare
Fibroblastoma	Common	Uncommon

These lesions are usually accompanied by the three cardinal symptoms of increased intracranial pressure, viz., headache, vomiting and choked disk. Every case with slowly developing cranial symptoms, hemiplegia or otherwise, should have the eye grounds examined and if choking is present the case probably needs an operation. We do not believe that medication will ever cure a gumma of macroscopic size and further believe that operation is the only cure. Fay reported such an operation before the Philadelphia Neurological Society in 1929 with recovery of the patient. Pathological examination of gummas of the brain treated by iodides shows no appreciable results so operation is considered the treatment of choice by many observers. This does not apply to gummas elsewhere.

Remember that a syphilitic patient may have a brain tumor. One patient died in a Philadelphia hospital, having been diagnosed syphilis of the brain, who had two brain tumors along with his syphilis. They were overlooked. We have long since given up the idea that brain tumors give syphilitic changes in the blood; but the conditions may occur simultaneously. Be on the lookout for tumors, and even though gumma is suspected operation is the best treatment.

An important point to remember is, that brain tumors may come on suddenly, that is, within minutes. Irish reported 70 cases, 60 from the literature and 10 from Philadelphia General Hospital, with onset occurring suddenly; 90 per cent of these were spongioblastomas; the rest were other types of gliomas. These symptoms were not always hemiplegia but in many cases were. A case I examined at autopsy at the University of Kansas Medical School had the following history:

Two months before had a "stroke," leaving a complete left hemiparalysis. Was diagnosed hemorrhage of the brain and ran an uneventful course until one day he suddenly died. Postmortem showed a glioma of the right cerebrum.

This history and the above diagnosis and postmortem findings occur too frequently. Examine the eye grounds of every case of hemiplegia; it may lead to a diagnosis which will save the life of the patient.

The three other factors—vascular spasm, sudden transitory edema and trauma—need little discussion. The first two are theoretical and are used to explain transitory hemiplegias occurring especially in paresis. They will be discussed later. The transitory hemiplegias occurring in other conditions are probably due to partial thrombi. The traumatic factor is usually self-evident. But we saw the brain of a case recently that had received a severe trauma twenty years ago with the development of a large hemorrhagic cyst in the pia giving no neurological symptoms but did show changes indicative of increased pressure. A second blow produced a second and then a third intrapial hemorrhage with many neurological symptoms, including paraplegia, and death.

Wherever there is a history of trauma, no matter how delayed the symptoms, consider a hemorrhage,—extradural, subarachnoid or subdural, in that order. In the first and the last there may be marked hemorrhage with no blood in the spinal fluid. The extradural or middle meningeal hemorrhage gives us one of our most interesting neurological pictures. The following is a typical history:

A patient came home one night rather intoxicated and in stumbling around the kitchen fell and struck his head against the table, striking his right temple. He was unconscious for about an hour; when he recovered consciousness he had no symptoms other than a headache and dizziness. This may or may not have been due to the blow. The next morning he had no symptoms. That night the headache and dizziness returned and the next morning he developed a weakness of the left side. That evening he became unconscious and died during the night.

We did not see the patient alive but were present at the postmortem examination. He had an immense extradural hemorrhage, arising from a weakened sclerotic middle meningeal artery which had ruptured at the time of the injury. This is a typical history and the man could have been saved. The course is always the same—injury, usually with unconsciousness of variable length, a lucid interval, lasting from a few hours to days, rapidly oncoming unconsciousness, with headache and perhaps vomiting and choked disks, hemiplegia and death. Unless operation is resorted to early nothing can save the patient. This same sequence of symptoms may occur in subdural and subarachnoidal hemorrhages but are much less common.

Now let us consider luetic hemiplegia. This is one of the most common causes. There are five types: (1) The prolonged, which occurs in general paresis; (2) the slow, which accompanies luetic meningitis; (3) the rapid or syphilitic thrombosis; (4) the transitory of general paresis due either to vascular spasms or transitory edemas; and (5) hemorrhage from luetic vessels.

Table 4. Age Incidence of the Various Factors.

Pathology	Decade of Life			
	Third	Fourth	Fifth	Sixth
Vascular	40%	39%	75%	80%
Syphilis	42%	44%	8%	7%
Other types	5%	5%	10%	10%
Undetermined	13%	12%	7%	3%

of this condition during this period of life. A good rule to follow is that if infection, tumor and embolism can be ruled out in a patient of this age the patent has syphilis even though the blood examination is negative. We always treat all cases of hemiplegia of unexplained etiology occurring between twenty and fifty years with antiluetic treatment, regardless of history or blood findings.

The second point to remember is, that general paresis is the most common cause of transient hemiplegias, regardless of age. By transient we mean a hemiplegia that recovers perfect function in a few hours to a few weeks. These cases are almost invariably paretic. General paralysis in paresis is usually a terminal condition and will improve only if the cerebritis responds to treatment. It is due to the degeneration and loss of function of the ganglion cells.

Syphilitic thrombosis is by far the most common pathology in luetic hemiplegia. Its course and treatment in the acute stages is the same as of any other type of thrombosis. In the chronic stage, the usual treatment of paralysis and contractures is fortified with antiluetic treatment. The treatment in the acute stage will be discussed later.

Of all the types, luetic meningitis responds best to treatment. This is the lesion some-

Table 3. Types of Luetic Lesions.

Types	Incidence	Speed of Onset	Resulting Symptoms	Results
Pareses. Ganglion cell degeneration	Common	Very slow	Diplegia	Usually terminal
Edema or vascular spasm	Very common	Rapid	Hemiplegia	Transient
Thrombosis	Very common	As other thrombosis	Hemiplegia	May or may not recover
Meningitis	Uncommon	Very slow	Diplegia	Usually recover
Hemorrhage	Very rare	Sudden	Hemiplegia	Fatal

Table 4 is interesting in reference to the age incident so we will insert that table here and discuss Tables 3 and 4 together. The figures for this table are taken from Thomas. We shall leave out the infectious side of our question as infection may occur at any age. We are likewise not going to discuss the first two decades of life as they are out of the scope of this paper. We might say that thrombosis and infections, such as encephalitis, are the most common causes during this period with embolism closely following, and hemorrhage and brain tumor of the cerebrum occurring very infrequently.

As we can see, syphilitic hemiplegia occurs most frequently in the third and fourth decades and likewise is the most common cause

times described as meningovascular syphilis, and cure is almost invariably to be expected if treatment is started before degeneration of the nerve tracts occurs. While hemiplegia is rare from this cause, other forms of paralysis, headache, psychosis resembling that found in paresis, and other symptoms, are frequently found. It is not an uncommon lesion but it is not a common cause of hemiplegia or diplegia. Mercury and iodides followed by the arsenicals is probably the treatment of choice. But it should be remembered that paresis may follow this condition, therefore, a course of Swift-Ellis or malaria may not be amiss.

Hemorrhage from luetic vessels in the brain uncomplicated by other types of vascular disease is very rare. Of over 100 cases reported



by Thomas only one showed this kind of lesion and it was questionable. He reports about eight cases of brain hemorrhage in syphilitic patients, but seven of these were complicated by generalized idiopathic arteriosclerosis. We cannot recall having seen one out of about 400 miscellaneous brains examined. The reason for this is easily understood. Hemorrhage from luetic vessels is always from an aneurysm. Luetic aneurysms in the brain are extremely rare. A prominent neuropathologist told me he had never seen one. Since Charcot proved that brain hemorrhages arise from minute sclerotic aneurysms, we must conclude that luetic hemorrhages in the brain are a clinical and pathological rarity, probably never seen by most physicians. We stress this point because most cases of luetic hemiplegia or paralysis coming on suddenly are treated by physicians as hemorrhages, with dire results to the patient's ultimate recovery. Treat them as you would a case of thrombosis.

The balance of the paper will be devoted to vascular catastrophes in the brain. Embolism is a very common diagnosis but while a common factor it is not nearly so common as is generally considered. Embolism will never occur if there is no pathology from which a free-floating embolus can arise. We do not believe that embolisms occur as frequently as they are diagnosed, but this contention cannot easily be proved because the resulting pathology is the same as that found in thrombotic cases, namely, softening. The only absolute differentiation is to find the occluding body and, as this cannot always be done even after a most careful search, we are seldom sure. Also, search is not usually made, and since cardiac disease is frequently found simultaneously with arteriosclerosis, either cause may be the exciting factor. But the treatment is always the same, hence there is no great practical importance in this differentiation.

It is, however, very important to differentiate hemorrhage and thrombosis. The basic treatment is absolutely different in the acute stages, and the results obtained depend entirely on this type of treatment. As I said early in the paper, the diagnosis of brain hemorrhage is usually made by some doctors following every vascular insult to the brain. This, I believe to be an erroneous concept.

The mortality rate of brain hemorrhage of macroscopic size has been carefully studied. Spiller, Cadwalader and Winklemann and Eckel have, during the past twenty years, written successive papers on the onset, size and prognosis of this condition. Their combined conclusions are as follows: Brain hemorrhages are usually large, at least 2 cm. in their smallest diameter; they are not immediately fatal;

the shortest span of life after onset was about five minutes and they are usually fatal, the longest span of life being about two months after onset. This last conclusion was modified by us to read that brain hemorrhages of macroscopic size are almost invariably fatal. This is based upon the fact that it is a pathological rarity to receive in a laboratory a specimen showing two large hemorrhages of different ages in the same brain. Now, it is true that it is impossible, according to Oppenheim and Buzzard and Greenfield, to differentiate the various vascular lesions after a period of years has elapsed. But there is a case on record of a brain hemorrhage identified four years after onset. Therefore, if repeated brain hemorrhages occur at under four years' intervals—and they naturally should—we should expect to see some of the specimens in the laboratories. As we do not see them it must be that they do not live long enough to develop the second hemorrhage, and therefore we conclude that the first brain hemorrhage is almost invariably fatal. A few escape, but they are in our opinion clinical rarities. Of course the above refers to cerebral hemorrhage and not to meningeal.

But every clinician has seen cases which have repeated attacks of hemiplegia. If they are not hemorrhages, what are they? They are thromboses or vascular occlusions. It is common to see brains with numerous areas of softening, the end-result of arterial occlusion. If we can reverse our reasoning in the above discussion, then we can conclude that cerebral thrombosis is not invariably fatal, and that most cases with this condition recover from the initial shock.

What of their relative incidence? Most practitioners and many teachers will tell us that brain hemorrhage is very common but that thrombosis is uncommon. We believe this to be erroneous as it is based on mortality reports to boards of health and postmortem statistics. The first, of course, are based on clinical observation and naturally eventually reflect back to the second. Now, it is quite true that in most laboratories brain hemorrhages outnumber thrombosis four to one. But, if our two above conclusions are accepted, then nearly all the cases that recover are thrombosis, and therefore, since many more cases recover than die, from the literature and hospital records of the living we conclude that the ratio is reversed at least by four to one. We firmly believe that, having ruled out syphilis, brain tumor, embolism and other causes, the ordinary run of not otherwise explained hemiplegia cases have four chances of being thrombosis to one of being hemorrhage. Some one may ask why these cases of thrombosis do not reach

the laboratories. This is easily answered. Most postmortems are performed on hospital cases. It is somewhat unusual for a patient, near death from a chronic affliction of the aged, to be brought into the hospital to die. They usually die in the private homes, the poor farms or the state hospitals for the insane where postmortems are seldom done. For this reason most of the healed thrombotic cases escape the pathologist. This ratio only includes massive thromboses and does not take into consideration the small thromboses that cause myelo-encephalomalacia. If the latter are considered, the ratio is a great deal larger.

What is the importance of all this? Most doctors are only interested in pathology, statistics, medical papers, etc., as an aid to better diagnosis, and from this, better treatment which, after all, should be the vital point of all medical work.

Now, the treatment of these conditions is quite different in the initial stages. In the chronic stages the treatment regardless of etiology is the same and cannot be discussed at length in this paper. The chief aim is to stimulate activity of the affected limb, by passive movement, massage, hydrotherapy, and encouragement to the patient,—psychotherapy. There are many good articles on this subject. We are, in this paper, more interested in the treatment of the acute illness. Our aims are twofold, first, to preserve life, and second, to preserve function.

The cause of death in hemorrhage is probably shock in most cases that die early, while those that die later die of increased intracranial pressure, with medullary herniation and respiratory failure. We therefore have three aims in our treatment: First, to limit the hemorrhage; second, to combat the shock, and third, to combat the intracranial pressure.

The cause of death in thrombosis is less frequently shock, for death occurs more often in the third or fourth week of the illness as the result of toxemia and increased intracranial pressure. Likewise, the death of tissue may spread, after the initial insult, so that we have three aims here also: first, to limit the softening resulting from the thrombosis; second, to combat the shock, and third, to combat the increased pressure.

Thus the treatment of these two conditions is the same in all respects, except the first factors. Of the three, the treatment of shock is of course the most important. The treatment should be the same as for any other shock—absolute quiet in bed, force fluids by rectum and subcutaneous and intravenous methods,

but never by mouth until the patient has fully recovered the ability to swallow, usually two to ten days. Morphine should be used, if restless; external heat—electric pads or hot water bottles—should always be applied, and the patient should be carefully covered with warmed blankets; stimulants, such as caffeine, camphor, etc., should be given. Caffeine sodium benzoate and camphor in oil are probably the best preparations.

If the patient recovers from the shock, reaction takes place with the laying down of reactive tissue and the production of edema. This produces increase in brain volume and an increase in pressure. This increase is best determined by examination of the eyegrounds to determine choking of the disk; the determination of the increase in intra-ocular blood pressure to see if it is increased over the peripheral blood pressure, and by spinal puncture, with a pressure reading with either a water or mercury manometer. Having determined that there is an increase in pressure, measures must then be taken to combat this. First, the intravenous injections of 50 c.c. of 50 per cent glucose twice a day, to reduce the brain edema. If this fails, decompression on the opposite side should be done, or drainage of the hemorrhage if such be present. Many men, especially Cushing, advocate early drainage of brain hemorrhages and we favor this view. We believe that this is the only means of saving these cases, and advocate it on every proven case. It of course is not applicable to thrombosis.

In order to preserve function the various lesions must be limited. Nerve tissue after it is once destroyed can never regenerate. Therefore, in order that function will return in as great a degree as possible these lesions must be limited. This type of treatment depends on the type of lesion. While we believe that thrombosis is by far the most common lesion producing hemiplegias, we know of only one absolute method of differentiation—the spinal puncture. This procedure should be carried out on every case of hemiplegia as soon as the doctor sees the case, and should be the only examination made, except a physical, to determine the type of case and an eyeground examination; all other things can and should wait. After a manometer reading is taken, fluid is drawn off. If blood is present, or the fluid is blood tinged, the patient probably has had a hemorrhage. If not, it is probably a thrombosis and should be treated as such. The variations in treatment may be summarized as follows:

	Position	Bleeding	Ice Cap	Purgation	Blood Pressure
THROMBOSIS	In bed, foot up	Never	Never	Enemas	Should be raised
HEMORRHAGE	In bed, head up	If shock is not present	Will do no harm	Catharsis	Should be lowered



Now, these five points are easily understood, if we remember that the treatment of the first is, to increase blood supply so as to encourage collateral circulation and save as much nerve tissue as possible, while the aim in the second is, to inhibit circulation so as to limit the amount of the flow and keep the hemorrhage as small as possible. Most of the above points are self-explanatory.

The best drugs to raise the blood pressure are adrenalin in small, repeated doses, atropine, caffeine, etc., while strophanthus should be used in failing heart conditions when digitalis has not been used recently.

Methods to lower the blood pressure temporarily are: bleeding, and the nitrites. Amyl nitrite has a sudden but transitory action, while sodium nitrite and glyceryl trinitrate have a slower but more lasting effect. However, these last must be taken by mouth, and tend to upset the stomach so some care must be taken in their use.

#### SUMMARY

The following will summarize the above: Believing as we do that nearly every case of brain hemorrhage dies during the initial attack, and that only the vascular cases with softening recover, we strongly advise that every case of hemiplegia, in which no cause can be determined by spinal fluid examination or eyeground changes, should be treated as a case of thrombosis. This routine will accomplish two things. It will save many lives now being lost and, when the patient recovers from the initial attack, function will return closer to normal if the lesion is restricted as much as possible.

#### CONCLUSIONS

We conclude from our study of the literature and from pathological examinations:

1. Brain tumors are a more common cause of hemiplegia than is usually considered. The symptoms may come on suddenly.

2. Brain hemorrhage is not a common cause of hemiplegia, either luetic or otherwise, and when present is almost invariably fatal.

3. Every case of hemiplegia without an absolutely proven diagnosis should be treated as a case of thrombosis to preserve the life of the patient and the function of the affected parts.

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#### DISCUSSION

DR. G. WILSE ROBINSON, SR., Kansas City: Needless to say, I agree with the essayist.

There is much confusion in the profession concerning the causes of hemiplegia. When I have been called in consultation in a case of sudden hemiplegia it is very rarely that the doctor has not told me and the family that the patient has had a brain hemorrhage.

The essayist has emphasized the fact that very few cases of brain hemorrhage survive; those cases of hemiplegia that do survive are usually the result of thrombosis and not of brain hemorrhage. The onset of the thrombosis may be fairly sudden but is usually slow. Preceding the attack of hemiplegia the patient may complain of some numbness of the fingers and toes, or of difficulty in saying the things he wishes to say.

A typical case that came under my observation some years ago was that of a prominent physician of Kansas City. Some time previous to the hemiplegia, which occurred about ten years ago, the patient had carried a pulse rate of between 50 and 60 and blood pressure of 90 to 100. He was approximately 60 years of age. Sunday morning he had a numbness of his fingers; during that day he noticed difficulty in saying some words. About midnight on Sunday he developed a right hemiplegia which totally disabled him for a considerable period of time. Finally, he was able to walk but cannot use his right arm and can talk but very little. This man undoubtedly had a thrombosis.

There are five principal causes of hemiplegia, viz., embolus, hemorrhage, thrombosis, inflammation and tumor. In my opinion, thrombosis is the most common cause of hemiplegia.

We should not give our patients with hemiplegia an entirely hopeless outlook. I know of many patients who are working and "carrying on" who have had hemiplegia for many years. I know of some who have continued to practice medicine quite successfully after having a hemiplegia.

DR. C. D. HUMBERD, Barnard: The Doctor has rather taken a leg out from under some of us who happen to be coroners, in saying that brain hemorrhages are not immediately fatal. It is quite customary when a man of sixty falls dead on the street and we get there within an hour and find one arm drawn up, one pupil larger than the other, the face asymmetrical, to write down apoplexy as the cause of death. If these cases are not cerebral hemorrhages, what has caused the man's death?

DR. G. WILSE ROBINSON, JR., in closing: I think the Doctor must have misunderstood me if he thought I said they were instantly fatal. That

would mean a matter of a few seconds or a minute or two. It is quite common to see brain hemorrhage which causes death within fifteen or twenty minutes to an hour, but they are almost invariably fatal cases. If a man lives an hour and has the symptoms the doctor has pointed out, of course he would probably have brain hemorrhage. I do not mean they live a matter of weeks, but they do not die within a few seconds.

## DISLOCATION OF THE CERVICAL SPINE\*

THEODORE P. BROOKES, M.D.

ST. LOUIS

Of late, increasing numbers of fractures and dislocations of the neck have been reported, so much so that Scudder<sup>1</sup> devotes fourteen pages to this condition. A German colleague<sup>2</sup> reports a case of habitual subluxation of the first two cervical vertebrae, which the patient has learned to reduce herself. The reason for the increase may be in part due to better facilities for their detection, but undoubtedly the actual number is also increasing. Taylor,<sup>3</sup> of New York, states that the increase is largely due to the mounting number of auto accidents. Perhaps that is true, although in the ten cases in this series of traumatic dislocation, with and without fracture, the much maligned automobile is noticeable by its absence. Six patients fell downstairs; two fell on the floor; one was a football injury; one was struck by a fall of dirt. Nine of these patients were seen during the past ten months. One died before treatment was instituted. One died after pneumonia ten weeks following the injury.

Examination of the prints shows that improvement in some instances is functional rather than anatomical. This is due, in large part at least, to delay in beginning treatment. That is the reason for reporting this series. It is a plea for prompt and accurate recognition of the condition to be followed by immediate and adequate correction. Only one patient received real emergency treatment. These injuries should be handled as carefully and as expeditiously as a gunshot of the abdomen or a gangrenous appendix. In the latter, delay may mean death, but if the patient does recover the chances for complete recovery are good. If the cervical cord or cervical roots are involved in an injury to the neck, delay may mean death, or if the patient recovers there is permanent paralysis of varying degree and extent.

The scarcity of neurological symptoms is noticeable in this group. However, even ex-

treme injury with complete paralysis below the site of injury should be reduced. It is impossible to determine whether the cord has been completely severed, or whether it is severely compressed at the level of displacement, or whether it is blocked by edema. Complete severance of the cord is a rare occurrence. The cord is tougher, has more space to move about in the spinal canal, and is more movable than we think. So an extensive injury may leave portions of the cord still in condition to function if pressure is promptly relieved and edema allowed to subside.

It is not unnatural for the surgeon to hesitate in assuming such a treacherous risk as manipulation of a dislocated or fractured neck. The risk frankly exists and should be intelligently explained to the patient, but the greater risk lies in neglecting these cases and allowing them to go through life with the ever present probability of some slight jar catching them off guard and converting a partial disability into complete loss. One hundred fifty years ago Sir Percival Pott<sup>4</sup> made two observations that still hold good:

Although a joint may have been luxated by means of considerable violence, it does by no means follow that the same degree of violence is necessary for its reduction. In every joint capable of dislocation, the same circumstance which renders it liable to be displaced, is also a very considerable assistance in its reduction. I mean the dilatibility or distractile power of the ligaments, their capacity of giving way when stretched or pulled at.

So a neck that has survived the uncontrolled violence of a fall downstairs or an auto wreck, should reasonably be expected to tolerate careful surgical reduction.

Prolonged traction over the head of the bed is unsatisfactory. It will not reduce a dislocation that is locked anterior to the underlying articular facet of the next lower vertebra. Being uncomfortable, the patient makes every effort to defeat its purpose of continued traction by easing the pull on the neck. Nursing care is also difficult. Taylor<sup>3</sup> describes in detail why laminectomy is inadvisable in the early treatment. Briefly, the reason is that when the dura is incised over a swollen, edematous, or lacerated cord shortly after injury, the compressed cord literally explodes with the release of the tension and shatters itself through the wound, causing prompt death. Therefore, manipulative reduction of the displacement offers not only a better chance of recovery but the only prospect for it.

### REPORT OF CASES

Case 1. Mr. C. S., aged 58, walked into the City Hospital one month after a fall down 18 steps. Car-

\* Presented before the St. Louis Medical Society, with lantern slide demonstration, October 1, 1929.



ried head bent laterally to the left, chin toward the right shoulder. Neck motions limited in all directions. Paresthesia along outer border of right forearm, thumb, and next two fingers. Roentgen ray showed anterior dislocation of the 5th cervical with fracture of spinous process and some new bone formation between the bodies of the 5th and 6th. Placed in extension for three weeks with no improvement. Under ether anesthesia, manipulated after the method of Walton.<sup>5</sup> Two loud snaps were heard all over the room as the lateral processes reduced over callus formation. Head was straight, cast applied from the crown of the head to the lumbar area. Next day, patient declared that the pain and tingling of fingers had disappeared. At time of discharge was wearing canvas and steel collar. Roentgen ray showed still some anterior displacement, but good union between 5th and 6th cervicals. Despite the persistence of anterior displacement of the body of the vertebrae, the rotation and displacement of the lateral process was evidently corrected. When seen September 25, 1929, this man was comfortable though his head protrudes forward noticeably.

Case 2. Mr. E. W., aged 35, brought to City Hospital immediately after falling down steps a distance of 12 feet. Upon regaining consciousness complained of pain in neck. Neck stiff, head carried forward with chin tilted and held in. Roentgen ray showed anterior dislocation of the 1st on the 2nd cervical, with some lateral displacement. Put up in extension, but ran an unexplained fever and had a stormy career. Three weeks after injury, was manipulated under ether after the manner of Walton and cast applied. That afternoon patient stated that his neck "felt right" for the first time. However, the roentgen ray was not so charitable and two weeks later an effort was made to complete the reduction without anesthesia, using the Taylor technic. Roentgen ray still refused to verify the reduction and the man was discharged in cast, with head erect and comfortable.

Case 3. Mrs. M. E., aged 46, pitched headlong down a flight of 14 steps. Admitted to Lutheran Hospital some 18 hours after injury. Had complete paralysis below the level of the 6th cervical. Head held forward, chin tilted downward. Roentgen ray disclosed anterior dislocation of the head and first five vertebrae on the sixth with extreme impingement on the spinal cord. This patient was seen in consultation with Dr. Mazius. It was decided to attempt reduction but the patient died shortly before the hour set for manipulation (fig. 1).

Case 4. Mr. M. C., aged 58, admitted to City

Hospital with pain in his neck after a fall downstairs eleven days previously. Entire back of neck red and swollen. A spinous process could be made out just below the occiput extending to the right of the midline. Neurological examination essentially normal. All movements of head painful, greatest on rotation. Roentgen ray showed anterior and lateral dislocation of the head and the first cervical vertebra on the second. Second vertebra also suspicious of injury. Manipulated once with anesthesia and once without and put up in cast. Insisted on going home where he later developed pneumonia. Recovered from pneumonia, but seemed to just good naturedly refuse to eat. Died ten weeks after injury (figs. 2, 3, 4).



Fig. 2. Case 4. Taken five weeks after injury. Shows rotation of right lateral process of first on second cervical.

Case 5. Mr. A. R., aged 41, admitted to City Hospital four days after being caught in a cave-in of dirt in a ditch he was digging. Head forward, chin down, neck stiff, and cervical curve obliterated. Second cervical spinous process prominent. Roentgen ray showed anterior dislocation of 1st cervical on 2nd and slight displacement of 2nd on 3rd. Under ether anesthesia attempted to reduce first one side and then the other, after the manner of Walton. A few days later attempted to complete reduction without anesthesia, using Taylor technic. We apologized to the patient for handling him so vigorously without anesthetic, but he remarked that "his neck felt better than at any time since he was hurt." Roentgen ray showed improvement but not complete replacement. However, the man was comfortable and did not care for any further handling. Discharged with celluloid collar.

Case 6. Mr. M. R., aged 20, admitted to Barnes Hospital department of neurosurgery five months after being struck on the top of the head by his opponent's knee during a football game. Again hurt three weeks later when he slipped on the ice and

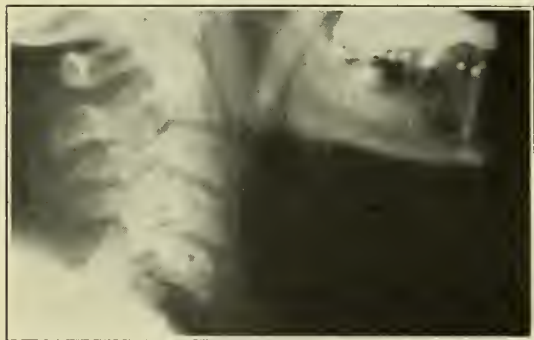


Fig. 1. Case 3. Showing extreme anterior dislocation of fifth on sixth cervical.



Fig. 3. Case 4. Lateral view showing anterior displacement of body of first cervical with tilting of spinous process.

jerked head severely. Had been treated in bed for fractured vertebrae for eight weeks, but pain still persisted, running up the left temporal region on moving head about. Roentgen ray showed the atlas to be split anteroposteriorly, allowing the right portion of the atlas to dislocate laterally. After conference between neurological, roentgen ray, and orthopedic services, it was decided that reduction of this displacement was impracticable due to the fact that the entire right lateral portion was completely separated from the balance of the vertebra. Celluloid collar was made from plaster mold and patient discharged, comfortable.

Case 7. Mr. F. L., aged 65, admitted to Barnes Hospital complaining of dislocation of shoulder and paralysis of arm. Three weeks prior to this date, after a three days' spree, patient had gone to the barber shop for a shave as the first step in sobering up. Arising from the barber's chair he pitched forward to the floor. Since then arm had been useless, suffered pain the entire length of arm and had tingling in finger tips. The humeral displacement proved to be a paralytic subluxation, while the roentgen ray revealed the 4th cervical vertebra slipped backward on the 5th. A full month after injury the head was manipulated after the technic of Taylor and large plaster collar applied. When seen on September 26, 1929, five months after injury, shoulder was in place, arm movements nearly perfect except for some limitation in thumb and forefinger. Head erect, with full range of motion.

Case 8. Mr. T. J., aged 40, entered City Hospital because of pain from right ear to right shoulder. Six days previously had fallen backward down eight steps when he became dizzy from heat. Was unable to turn head to left. Weakness of entire right arm. Roentgen ray showed anterior dislocation of



Fig. 4. Case 4. Showing typical flexion of neck and abolition of posterior cervical curve before reduction.

3rd on 4th cervical vertebra, with some encroachment on the spinal canal. Two weeks after injury Walton maneuver with ether and later the Taylor technic without anesthetic were employed and cast applied. Roentgen ray three months after injury showed good union between 4th and 5th. Slight displacement of 3rd on 4th persists but not as marked. The strength in the arm has largely returned so that patient secured a job as hospital orderly.

Case 9. R. W., girl, aged 6. While playing at home, fell over a chair hurting her neck and right leg. The next morning she had mumps and was in bed for two weeks. Upon recovery from the mumps it was noted that she carried her head crooked and complained of pain in her neck. This was considered a toxic myositis and she was treated with physiotherapy and a Thomas collar for some weeks. This gave some relief but not recovery. Careful review of old and new roentgen rays disclosed dislocation of right articular process of 3rd cervical on 4th. Four months after the original injury, under anesthesia at Lutheran Hospital, the head and neck were manipulated after the Walton technic of "retrolateral flexion and rotation without extension." The deformity immediately corrected and cast applied. Two years later she has complete range of motion of neck in all directions.

Case 10. Mrs. B. H., aged 28, entered City Hospital complaining of pain in neck and occiput, with limited motion. Had plunged head first down narrow attic stairs the same morning. Head bent to the right, while the chin was carried downward and toward the left shoulder. Marked tenderness over the 2d and 3rd cervical vertebrae. Roentgen



ray met with difficulties. In the first place, the rotated chin obscured the right lateral process of the 2d cervical. Another view taken to clear this up, showed what appeared to be anterior dislocation of the lateral facet on the right side of the 2d, but the lateral view showed facets in line. I believe this is to be explained by the fact that the facets shown were on the left side, for the left side was toward the film. The dislocation was on the right side and could not be visualized on this film. Further films were not made until after reduction. It is difficult at best to secure good films with the skull and vertebrae twisted out of line. This patient was put on the table the same day and the house officer applied the Walton maneuver without anesthetic. The head immediately came back in line. The patient asked to be allowed to sit up, moved her head about in various directions and said in an awed tone, "Why,—why, it's all right, now." A plaster doll collar was applied. This was split forty-eight hours later and the neck found to be in good line.

Most of these fractures and dislocations were brought about by a combination of acute flexion, lateral bending, and twisting of the neck. That is the mechanism employed by the hangman to insure quick, certain death. Death by strangulation is relatively painless, for the pressure on the carotids quickly causes cerebral anemia, but death by a broken neck in addition to strangulation is quicker and less harrowing to the witnesses. Mr. G. P. Hanna,<sup>6</sup> of Illinois, well known for his farming industry and also for his work as humane expert in legal executions, says that the hangman's noose has a knot extending from the angle of the jaw to the top of the head. This knot should lie along the left side of the head, pulled tightly so that, when the drop comes, the victim's neck is pulled to the left, the head is thrown forward, snapped laterally to the right, and rotated by the knot pressing against the mastoid. That pretty well corresponds to what happens when one plunges down steps with the head flexed, bent laterally and twisted. A glance at the cervical vertebrae will show this.

In simple dislocation of one lateral process the amount of luxation is variable. The articular facet may catch on the top of its fellow below, or it may slide over and lock anteriorly. Obviously, it is impossible to rotate it back for it is blocked against the anterior face of the lower transverse process. Straight traction may cause it to lock even more firmly under the anterior curve of the superior articular process of the underlying vertebra. Walton proposes to first release this locking by increasing the rotation of the head, then, lifting up the displaced process by using the lateral process of the opposite side as a fulcrum, rotate the head back to let the inferior process clear, and finally allow it to seat itself home by restoring the head to its upright position. All

this is without extension. It is particularly applicable to these cases of unilateral dislocation without extensive fracture.

In extensive fracture of vertebral bodies with accompanying dislocation, the technic described by Taylor is preferred by the writer. The patient is placed on his back on a table, shoulders supported by narrow metal back strips which can be extended beyond the end of the table. A regular head suspension apparatus is applied, or one is improvised from heavy muslin. The ends of the suspension are fastened to a belt which goes about the operator's waist. Robust assistants hold the shoulders and limbs. The operator will stand on a low stool to permit him to swing his body weight against the belt in the line of displacement, which is usually anteriorly. After steady pull of increasing amount for five to ten minutes, the neck muscles should relax sufficiently for the surgeon's hands to manipulate the neck bones to some extent. When he feels that the lateral processes have cleared their obstructions and the fractured bodies have extended, he can step down from the stool, taking care to maintain extension at the same time. This brings the vertebrae above the line of injury back to their normal plane. The head must be held steady until a cast has been applied from top of head to lumbar level. Such a cast should be worn for approximately three months; after that a brace with jury mast may be substituted, or a celluloid collar, depending on the amount of damage, for a year.

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## DUODENAL ULCER; SURGICAL TREATMENT

WITH CASE REPORTS\*<sup>1</sup>

J. W. THOMPSON, JR., M.D.

ST. LOUIS

The best method of treatment for ulcer of the duodenum has long been a matter of contention. This fact indicates that various authorities have been successful with individual methods. There is some value in almost every régime proposed. Surgical intervention, however, should be based on more or less stand-

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1. From the Section on Surgery, Soper-Mills Clinic.

ardized indications. These have been well presented in a recent paper by Finney and Hanrahan.<sup>1</sup> No attempt will be made here to discuss etiology or diagnosis. Larimore<sup>2</sup> in a recent contribution has brought additional facts to prove the focal origin of various abdominal infections as well as their interrelationship. The purpose of this brief paper is to present a working classification of types of ulceration of the duodenum, together with illustrative case reports. This theme is perhaps best approached by way of mentioning the commonly accepted indications for surgical intervention in patients in whom a diagnosis of duodenal ulcer has been definitely established.

Perforation, marked obstruction, and repeated bleeding have long been accepted by internists and surgeons as indications for operation. Other indications are still a matter of dispute. Persistent pain due to associated duodenitis and spasm of the pyloric sphincter, failure of medical management to give relief, economic factors in working people who cannot afford to nurse a chronic ulcer, are all indications for surgery. Gastric ulcer, cholecystic disease, chronic appendicitis with reflex spasm of the duodenal cap simulating true duodenal ulcer, early malignant disease of the pylorus, are excluded from this consideration. Any of these lesions are often likely to be confused with duodenal ulcer but do not as a rule present great difficulty in differential diagnosis if advantage is taken of all modern methods including thorough gastro-intestinal roentgen ray examination by a competent roentgenologist, and careful examination of the biliary tract together with complete laboratory studies, particularly for occult blood in the stool.

It is the practice in most clinics to give simple duodenal ulcer a chance to respond to medical and dietetic management, with the exception of acute perforation and marked organic obstruction cases. It has been repeatedly demonstrated that there are many patients who do not have organic obstruction, but on the contrary hypermotility, who are not benefited by medical regimens of any character and respond only to more radical surgical intervention. Approximately 90 per cent of patients are permanently relieved in this manner. True, there is a certain amount of operative risk involved together with the possibility of subsequent development of gastrojejunal ulceration with attendant complications such as gastrojejuno-colic fistula, but the danger is small (2 per cent) as indicated by Balfour in a recent statistical report.<sup>3</sup> Lewisohn<sup>4</sup> reports as many as 33 per cent of all cases developing marginal ulceration and recommends gastric resection for simple duodenal ulcer. This figure is un-

usually high and represents data collected from patients chiefly of the Jewish race. It must be granted likewise that jejunal ulceration may still occur subsequent to gastric resection. This possibility in itself recommends a more conservative policy.

The following classification represents several distinct clinicopathologic types of cases on which surgery is the indicated form of treatment:

1. Acute perforated.
2. Recurrent hemorrhagic.
3. Chronic recurrent (duodenitis with ser-pigenous ulceration).
4. Organic obstructive.
5. Multiple ulcerative (short duration, severe symptoms).
6. Chronic perforating (without obstruction).

Case reports are presented to illustrate the various types.

#### REPORT OF CASES

Case 1. Acute perforated. Mr. E. M., a laborer, aged 48, brought to the hospital because of severe sudden epigastric pain followed by a certain degree of shock together with board-like rigidity of the abdomen. There was a marked leukocytosis and temperature elevation to 101 degrees F. Immediate operation disclosed a perforated ulcer of the duodenum which was closed with a purse string suture and covered with a fat tag from the adjacent gastro-hepatic omentum. A small rubber tissue drain was left down to the region of the duodenum. The patient made an uneventful recovery.

Case 2. Recurrent hemorrhagic. Mr. H. C., salesman, came to the clinic complaining of the classic symptoms of duodenal ulceration. While under medical and dietetic régime he developed severe hemorrhages. He had a hyperacidity together with the characteristic deformity of the duodenal cap fluoroscopically, as determined on his initial examination previous to the bleeding. After two rather severe hemorrhages for which he was treated by means of the Levin duodenal catheter<sup>5</sup> it was thought best to explore the ulcer. At operation a definite hemorrhagic ulcer was found, a Judd type of pyloroplasty being done, excising the ulcer together with the anterior half of the pyloric sphincter. The patient made an excellent recovery and has been free from symptoms for two years.

Case 3. Chronic recurrent (duodenitis with ser-pigenous ulceration). Mr. R. J., aged 43, mechanical engineer, presented himself with a history of ulcer symptoms lasting 10 years and characterized by recurrence in periods of three weeks to six months. He had previously been hospitalized on several occasions and had carefully nursed his ulcer for a protracted period of time. Examination showed the deformity of the duodenal cap and a marked hyperacidity. (82 total—42 free.) At operation multiple duodenal ulcers were found. There was no organic obstruction. A marked ser-pigenous type of ulceration involved the first three inches of the duodenum. A pyloroplasty was mechanically impossible so a posterior gastro-enterostomy was done. The patient made a fine postoperative recovery and has been free from symptoms for nearly a year. He has gained 15 pounds in weight.

Case 4. Chronic obstructive. Mr. T. McM., a



clerk, aged 42, had suffered attacks of acute appendicitis with ultimate perforation and abscess formation for which he was operated upon elsewhere in 1926. Since 1927 he had complained of belching, regurgitation, epigastric soreness and burning relieved by food and soda. Nausea and vomiting were later symptoms. There was evidence of marked obstruction at the pylorus together with hyperacidity. At operation a large obstructive type of duodenal ulcer was found. A posterior gastro-enterostomy was made and the patient has gained from 146 to 180 pounds in weight since his operation and is entirely symptomless.

Case 5. Multiple ulcerative (short duration, severe symptoms). Mr. M. H. A., aged 54, a carpenter, gave a history of symptoms of severe epigastric pain radiating from left to right, more or less constant, with no relationship to meals or food. These symptoms were of 18 months' duration. Examination showed a marked hyperacidity (80 total—74 free), together with a deformity of the duodenal cap. At operation a subacute perforating type of ulcer was found on the anterior wall of the duodenum. A Balfour pyloroplasty<sup>9</sup> was performed in this instance as there was a contact ulcer on the posterior wall of the duodenum directly opposite the one on the anterior wall. The patient made a good recovery and is symptom free.

Case 6. Chronic perforating type (without obstruction). Mr. A. L. M., aged 54, a painter-laborer, had been under treatment by various physicians for a period of ten years during which time he had been operated upon for appendicitis. His complaints were typical of ulceration on the posterior wall of the duodenum of the chronic perforating type. He had periodic recurrent attacks of pain in the epigastrium radiating to the back straight through and relieved by food and baking soda. The pain usually came on 2 or 3 hours after meals. He had been advised against operation because of the absence of organic obstruction. He had lost weight from 200 to 146 pounds, under strict dietetic régime. He was unable to work. His complaints constituted an economic indication for surgery, to say the least. Operation was performed two years ago and a chronic perforating type of ulcer was found attached to the pancreas and forming a mass 2 cm. in diameter though there was no organic obstruction. A posterior gastro-enterostomy was made and the patient made a splendid recovery. He has resumed his occupation and a recent letter states that his weight is 206 pounds and that he has been entirely free from symptoms since the operation.

The type of operation to perform varies with every case, except perhaps those with marked obstruction where gastro-enterostomy is always the procedure of choice. The habitus of the patient and anatomical relationships found at the operating table as well as the exact lesion itself influence the choice of type of operation. Some modification of pyloroplasty is applicable to many cases. This type of operation is particularly valuable in bleeding ulcer cases and in patients with an easily mobilized duodenum where quite frequently multiple contact ulcers will be found on the posterior wall of the duodenum. Pyloroplastic operations are considered more physiologic and eliminate the danger of subsequent jejunal ulceration. So-

per<sup>9</sup> has shown that it is possible to heal even this severe lesion by feeding per duodenal catheter, which accomplishes the same results as a jejunostomy. In case the more conservative pyloroplasty fails to effect a cure then it is always possible to resort to posterior gastro-enterostomy. Patients with a marked duodenitis having the serpigenous form of ulcer, and those whose habitus the duodenum has fixed so as to make its mobilization difficult, should be treated by posterior gastro-enterostomy. Clinical cure will be accomplished in 90 per cent of such cases, as Balfour<sup>7</sup> has repeatedly emphasized. In a small number of patients it will be necessary to perform anterior gastro-enterostomy, preferably with entero-anastomosis between the proximal and distal loops of the jejunum. A small number (2 per cent) will develop marginal ulcer and may come to operation for relief, and in these cases it is best to perform gastric resection. Such cases are relatively few and because of them one should not be so radical as to subject every patient with surgical duodenal ulcer to the extensive resection type of operation.

The postoperative management is of equal importance with the choice of operation. The care with which a patient is treated following surgery will, in the writer's opinion, often determine whether or not subsequent recurrence develops. A technic<sup>8</sup> has been worked out in the postoperative management of these patients wherein the Levin duodenal catheter is used immediately following the operation, to keep the stomach empty for a period of from 24 to 72 hours. The acidity can be easily controlled by this method and lavage with the large caliber stomach tube with its attendant retching and pain are eliminated. After immediate postoperative recovery these patients should be observed in collaboration with the gastro-enterologist and dietitian. A careful regulation of hygienic conditions, including the elimination of all foci of infection, is imperative.

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DISCUSSION

DR. ARTHUR C. CLASEN, Kansas City: Those who know something of duodenal ulcer will appreciate the accurate work that Dr. Thompson is doing. I have seen some of his work in St. Louis and, knowing his chief, Dr. Soper, I know how accurate he is.

Dr. Thompson mentioned one complication, namely, jejunal ulcer. At the last meeting of the Gastroenterological Society in Atlantic City last week, Dr. Ivy, of Chicago, presented some extensive work he had been doing relative to secondary ulcer formation as a sequela of gastroduodenostomy and gastrojejunostomy. Dr. Ivy mentioned that marginal ulcer was more common in gastrojejunostomy than in gastroduodenostomy.

The doctor also mentioned the value of the duodenal tube, and that is worth while carrying away with you. I do not know that I am in accord with his method of aspiration during acute hemorrhage. That remains to be seen. But I do know that in gastric and duodenal hemorrhage the postoperative therapy certainly has much merit.

Dr. Thompson also mentioned gastric resection and said he considered that procedure before doing a gastrojejunostomy. I think Ivy still feels that in those cases where gastrojejunostomy had been done the percentage of recurrence is greater than where resection was made.

One thing I would like to carry away with me is the postoperative method of therapy, namely, transduodenal lavage and aspiration.

## MALIGNANT TUMORS AND THE INTERNIST\*1

LEE D. CADY, M.D.

ST. LOUIS

This consideration of cancer in the generic sense of malignant tumors as a group deliberately avoids a discussion of morphological pathology of classification. It will consider only those phases that confront the medical clinician, or internist, in handling patients afflicted with a malignant tumor and, consequently, must deal largely in generalities, passing over what has been said in this series of clinics or entirely omitting reference to subjects previously considered here.

After centuries of observation and decades of intensive study and research, the medical profession is still in a state of chagrin when the layman asks, "What is the cause of cancer?" or says, "It looks like somebody would find out what the cause of cancer is." Or, what is worse, when the practitioner is forced to tell the patient or relatives that this remedy is a fake or that method will be ineffective.

Much has been learned about the pathology of cancer in its various degrees of malignancy. The study of malignant tumors has forced scientists to learn more and more of the biochemistry of normal cells. These malignant

cells do not function; they grow, invade and eventually destroy the very cellular economy upon which they are dependent. They starve the host which they occupy and repay it by throwing additional burdens of elimination on it. They throw back into the blood stream large amounts of lactic acid and unidentified toxic substances. The search for the cause of cancer has uncovered evidence tending to show the presence of a germ or virus in certain tumors, but results have been disappointing. The use of radiant energy in the treatment of malignancies has served to direct attention toward colloidal, physical or electrochemistry, or electrophysics, whichever you will have it, as a possible means of attaining an effective treatment or a clew to the origin and true nature of cancer. I refer here to the colloidal state of cells. What differences are there in this colloid state of being of molecules making up cancer cells, from the colloid state of being of normal cells whence they sprang? There seems to be no significant differences in the chemical analysis of such tissues. There are significant differences in the metabolic processes, but can these facts be correlated with electrical charge differences that seem to be present? The search for the source of cancer is going beyond the search for empirical remedies and in the direction of more fundamental physical considerations, nearer the source of *Life*. The biochemistry of cancer is becoming the biophysics of cancer.

The clinician is little concerned with the biophysics of cancer, but he must cope with disturbances of the physiological processes of his patients. These disturbances are symptoms. Cancer propaganda is forcing the average physician to acquaint himself more and more with the daily symptoms and treatment of malignancies. He must deduce from the history whether or not there is a possibility of cancer. Then he must examine the patient in a routinely thorough manner, not only to establish the presumptive diagnosis, but to exclude the presence of unsuspected malignancy. The diagnostician must stubbornly adhere to his fixed purpose despite the difficulties, economic or psychic, that beset the patient. Above all, he must not contribute to or cause phobia on the part of the patient. He must keep his counsel and examine the patient in his own way.

The necessity for this last statement is exemplified by two cases I have here before you. This young man of 26 had an obstinate constipation. After several months the constipation gave way to diarrhea. The stools were searched for parasites and the gastro-intestinal tract was fluoroscoped in a routine and com-

\* Read by Invitation at the Clinical Conference of the St. Louis Clinics, June 17, 1930.

1. From the Soper-Mills Clinic.



plete manner. Nothing but a mild type of colitis was found. Then, what was supposed to be a large painful hemorrhoid was removed. Examination of this tissue revealed it as possibly lymphosarcoma. The growth is limited to the anus and undoubtedly was present during the phase of constipation and might have been successfully removed then. He has had a positive Wassermann reaction and was treated. Despite the fact that the blood shows no changes at present we are treating him specifically in the forlorn hope that the diagnosis of malignancy is wrong.

The second patient is a man in the cancer age. He is a minister and says he has obeyed the ten commandments. Now he is as sorely afflicted as Job, for he has tabes dorsalis and carcinoma of the rectum. Instead of assuming that his rectal difficulty was due to tabes an earlier examination would have disclosed the malignancy when the condition was operable.

Another sad experience with rectal cancer was in a girl of 21 who had symptoms for 18 months. At the time this diagnosis was made the condition was inoperable. This patient had some relatively unimportant gynecological condition, but the rectum was not examined until symptoms supervened.

This is not a plea for early diagnosis of cancer, but it is an exhortation for an earlier examination of patients. In the majority of cases, the early diagnosis will be arrived at during the early examination and definitive treatment can be carried out.

If the malignancy is operable, or even possibly operable, appropriate surgical procedure should be carried out immediately. Such cases as are adaptable to radium or roentgen ray therapy are so treated. In such cases the internist's responsibility soon ceases. In the inoperable cases his responsibility ceases only when the patient dies. He is then beset by the question of what palliative measures to use. Will deep roentgen ray therapy or radium be useful? If not, will diathermy coagulation or cautery be of assistance, as in many cases of rectal malignancy? It has been my good fortune to assist Dr. H. W. Soper in his work on diathermy in inoperable and very early rectal growths. This relatively new method is a valuable palliative treatment in many pelvic colon tumors and apparently curative in the very early small growths.

Now, how much may the internist experiment with the more or less periodically announced cancer cures? His conscience must be his guide and he should allow no operable case to lose time by trying an untried remedy. Colloidal lead and colloidal gold have not been

satisfactory although they present interesting facts. The new Coffey-Humber adrenal extract treatment may be of service but it is not confirmed at present.

The medical treatment of malignancies resolves itself into the treatment of the afflicted individual rather than the morbid condition. The patient's sense of well-being is best sustained by a good nutritional state brought about by adapting diets to his particular necessity. As much attention should be given to the vitamin balance as to the caloric intake. When the inevitable pain and discomfort arrive some opium derivative should be employed in minimum overlapping doses so as to keep the patient continuously under its influence. The dosage must increase as the patient's tolerance increases. Hypodermic injections should be avoided when possible to administer the narcotic by mouth or rectum. It was possible to carry a young man 33 years old with carcinoma of the stomach to the end without a single hypodermic injection by giving him morphine by mouth until complete obstruction occurred and thereafter by rectal administration. The nurse who cared for him during his last days had just come from a similar case and remarked the vast difference in the comfort this young man had, when the administration of the narcotic was thus controlled, and not just given when the patient was forced to demand it for relief.

Thus it may be said that the management of a patient with inoperable malignant tumor requires art as well as science, but withal, a bit more art than science will smooth the way immeasurably for the patient and much for the physician.

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## CIRCULATORY DISTURBANCES IN DIABETES \*

DONALD R. BLACK, M.D.

KANSAS CITY, MO.

Insulin has given the diabetic more comfort than he has ever before known and a very definite increase in the expectancy of life. Before 1921 the five-year diabetic was unusual and the ten-year diabetic almost unheard of; but today every doctor knows of five-year diabetics, and five to seven-year cases are very common. The treatment of diabetes has of course been revolutionized.

One is now able to give the diabetic a diet approaching that of normal individuals. In fact, some clinicians are advocating normal

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high carbohydrate diets with sufficient insulin to render the patients sugar free and to maintain normal blood sugar levels.

This comfortable existence for the diabetic has not been attained without certain unfortunate features, among which not the least is arteriosclerosis and its various manifestations. Whereas, ten years ago the majority of diabetics died of acidosis and coma, at present more die as a result of some form of arteriosclerosis. Sixty per cent of diabetics over forty years of age show arteriosclerosis in the extremities and 50 per cent in the retinal vessels. Joslin feels that all five-year diabetics have arteriosclerosis regardless of the age of onset.

Diabetes begins and ends with abnormal fat metabolism, "whether the culmination of the faulty fat metabolism results in acidosis or coma,"—rare diseases in this day of accurate management—or whether the wear and tear on the arteries due to acid bodies circulating in the blood render intimal and later medial changes of such a nature as to produce arteriosclerosis. The important point is that these sclerotic changes are almost universal.

Hopkins, in a rather exhaustive study, concludes that four clinical features occur together with diabetes: (1) hyperglycemia, (2) obesity, (3) arteriosclerosis, and (4) hypertension. There is some question as to the pathogenesis of hypertension in diabetes, or diabetes in hypertension cases, but certainly their frequent occurrence together is far from coincidental. In this paper I want to consider arteriosclerosis in general, hypertension, coronary disease with resulting heart muscle damage, arteriosclerosis of the extremities and the ocular changes as they occur in diabetes.

*Arteriosclerosis.*—It has been prophesied that in the distant millennium, when the horrors of cancer have been repelled by a cure, when the problem of tuberculosis has been solved, when deaths from pneumonia and other acute infectious diseases have been relegated to the heap of the past unenlightened area, mankind will still succumb to degenerative changes, mainly arteriosclerosis. The increasing incidence of circulatory deaths in diabetes since insulin was discovered seems to bear witness to the wisdom of this hypothesis.

The incidence of diabetes is greatest in the natural arteriosclerotic age, and since arteriosclerosis is so common in younger diabetics it must follow that in patients who develop diabetes after forty-five years of age, arteriosclerosis will be more frequent than in nondiabetics of the same age.

The etiology of arteriosclerosis in diabetes is the same as in nondiabetics, namely, diet,

alcohol, tobacco, focal infection, heredity, endocrine influences, mental and physical strain. In addition, the diabetic has the factors of hyperglycemia, the circulation of acid bodies and cholesterol. Again we resort to faulty fat metabolism. The changes in the arteries of diabetics are characterized by an abnormal amount of cholesterol, and in contrast to most other forms of arteriosclerosis, internal changes are more important.

Virchow's theory of imbibition apparently applies directly to diabetes. Aschof feels that the general wear and tear of advanced life are the actual inciting factors, but accepts the imbibition theory in addition because he was able to demonstrate large amounts of fat in the arterial walls and also high cholesterol values in the blood; the higher the cholesterol values in the blood the more he found in the intima of the blood vessels. With proper insulin treatment and accurate dietary regimen lower cholesterol values are attained and it is quite possible that the next ten years will see a marked decrease in cholesterol arteriosclerosis.

Arteriosclerosis in diabetes differs from non-diabetic sclerosis in another manner, i. e., the disease is most common in the feet and legs, next in the heart. Three types of sclerosis are found: (1) The atheromatous or intimal type, (2) the senile or medial type, (3) the Gull-Sutton type, sclerosis of the capillaries and small arterioles. The first type predominates in early diabetes and grades into the second type as age advances. There is little to differentiate between senile gangrene of the extremities and diabetic gangrene except that general nutrition is poor in diabetes and the patient's ability to withstand the associated infection is lessened.

*Cardiac Disease.*—Diabetics are subject to coronary disease and to myocardial degeneration secondary to coronary sclerosis. The circulatory collapse found sometimes in coma is not understood. It is temporary and frequently responds to caffeine sodium benzoate and after the coma disappears the heart muscle is frequently in good condition.

Root found 122 cases of angina pectoris or coronary occlusion in 476 cases of diabetes. The frequency of coronary disease increases in proportion to the duration of diabetes. Levine states that 7 per cent of angina pectoris cases gave a previous history of diabetes. He also states that the presence of diabetes does not materially alter the age at which coronary thrombosis usually occurs. Thus, the age of occurrence in the nondiabetic group was 57.8 years, while in the diabetic group it was 58.1 years. From the above we would expect coronary occlusion to occur earlier in the diabetic group.



Hepburne and Graham have pointed out the association between focal infection and attacks of angina pectoris, and especially the frequent marked improvement in cases of angina after focal infection has been removed. It is common knowledge that the severity of all infections is increased in diabetes. It seems safe then to assume that, given an altered metabolism with the irritating effect on the coronary vessels of hyperglycemia, hypercholesterolemia, and of acid bodies, the added result of focal infection would lead to many occlusions which would not otherwise occur. The incidence of occlusion would be lessened if focal infection could be eradicated and metabolism made to approach normal.

Hepburne and Graham made electrocardiographs in 123 cases of diabetes and found that 56 showed evidence of myocardial change in the beginning of treatment. A certain percentage of the cases showed normal electrocardiographs after treatment had been established. This would indicate that abnormal metabolism noted above produced part of the myocardial change, but since there is no evidence that acidosis and other metabolic effects of altered metabolism have any direct action on the heart muscle, except in the rare cases of circulatory collapse in coma, and since the type of myocardial change found was similar to that observed in hypertension and arteriosclerosis, the assumption would be that the myocardial change was secondary to coronary disease and that improvement in the diabetic condition simply relieved the coronary disease.

Elderly diabetics in whom coronary disease is suspected should be watched carefully. The arteries are brittle and the heart muscle is accustomed to a definite amount of glucose. These old people develop hypoglycemia easily and are apt to suffer fatal attacks of angina either from excessive doses of insulin or sudden dietary reductions. In fact, some cardiologists advocate the use of glucose injections in attacks of angina pectoris even in nondiabetic cases.

*Sclerosis of the Extremities; Diabetic Gangrene.*—Hospitals admit more cases of diabetic gangrene today than formerly. Coma is becoming less frequent and gangrene more frequent. Thus, from 1921 to 1922 in the Montreal General Hospital, 16 per cent of the deaths in a series of 1016 cases of diabetes was due to gangrene, while in the following three years 39 per cent of the deaths in a series of 600 cases of diabetes was due to gangrene. The reason for the increased mortality from gangrene notwithstanding the decrease in general mortality in diabetes is explained by the fact

that the former causes of death, namely, coma and surgical death, are now largely controlled. The incidence of gangrene increases with age. The readiness with which gangrene develops appears to have a more definite relation to the period of life at which the diabetes develops than to the duration of the disease; thus, when the disease develops between the ages of 30 and 40 years, the average time in which gangrene develops is 9 years, whereas, when the disease develops between the ages of 60 and 70 years the average time before gangrene develops is one year.

Relatively few cases of gangrene develop from embolism or thrombosis without some precipitating factor which could have been prevented, such as, for example, infected corns, ingrowing toe nails, abrasions of the feet or toes produced by careless paring of corns and toe nails. Treatment should therefore be directed toward prevention. The feet should be kept scrupulously clean and bathed once or twice daily. Extreme care should be taken in the matter of trimming nails and paring corns. In case of tender, sore feet, salt baths, alcohol rubs and general hygienic measures are indicated. The nutrition of the skin and tissues of the feet is very poor in diabetics, especially in elderly cases. I have recently seen three cases of severe gangrene develop when therapeutic light was too strenuously used in the treatment of small abrasions. The important point in treatment is prevention. Practically all cases of definitely developed gangrene require surgery and amputation usually is necessary. In general, amputation is best done at the knee joint or above; if attempted below the knee secondary operations are usually necessary.

*Ocular Signs.*—Retinitis is the most common single eye complication of diabetes; it occurs in 20 to 25 per cent of all diabetics. Retinitis was found in 10 of the 18 diabetics twenty to thirty-six years old of Joslin's series. Retinitis is found in hypertension very commonly and almost without exception in diabetes complicated with hypertension. It is very difficult to make a diagnosis of diabetes from the type of retinitis found; but the usual findings, i. e., cloudy lens, small exudates surrounding the macula, and punctate hemorrhages situated deeply within the retina, should make one suspicious. When these are associated with lessened ocular tension, the so-called soft eyeball of Riesman, the probability of diabetes is great and examination of urine and blood usually supplies the diagnosis. Under appropriate treatment diabetic retinitis offers a more favorable prognosis than does the type of retinitis

found in association with malignant hypertension, but when both hypertension and diabetes occur in the same patient treatment is usually disappointing.

*Hypertension.*—The subject of blood pressure in diabetes has aroused considerable comment in recent years. The literature is divided on the question of the exact relationship between diabetes and hypertension. Vaquez, Kahn, Janeway, Elliott and Rosenbloom feel that the systolic blood pressure is not elevated in uncomplicated diabetes, and that when hypertension is present in persons affected with diabetes, the elevated blood pressure is suggestive of the presence of some other condition which of itself produces the hypertension. On the contrary, many investigators contend that the blood pressure in diabetic persons tends to be elevated. Petain, Bell, Clauson, Peterson, and Krumer all feel that hyperglycemia produces elevation in blood pressure, while Joslin states that in patients with diabetes the blood pressure tends to be below normal in those "under the age of 35, after which it is slightly above normal."

When nephritis complicates hypertension, blood sugar values above normal are commonly found even though no abnormality of carbohydrate metabolism exists. Frequently also in cases of benign hypertension or in the hypertension of chronic glomerulonephritis showing evidence of cerebral encephalopathy, glycosuria and also mild hyperglycemia are present but they disappear as soon as the attacks subside.

Thus far we have considered the incidence and the pathogenesis of circulatory disturbances; now let us consider their prevention and management. Prevention will always be the important aspect of treatment of arteriosclerosis in diabetes. Let us realize first, that diabetes is a cause of arteriosclerosis; second, that abnormal fat, especially cholesterol metabolism, adds to the severity of sclerotic change. It is important then to discourage overnutrition in all patients, diabetic or non-diabetic. Eighty per cent of all diabetics are overweight at the beginning of treatment. Diabetics should be taught that mental and physical exertion predisposes, not only to arteriosclerosis, but also to fatal catastrophes resulting from arteriosclerosis.

Diabetics should be told that focal infection makes possible increased severity of sclerosis and possibly acts as an exciting cause. I strongly urge all my diabetics to have all possible foci of infection eradicated. High fat diets for diabetics are dangerous for routine treatment. In hospitals they may be employed to build weight and strength for emaciated

cases, but even there the matter of acidosis must be kept in mind. For practical purposes I use Woodyatt's formula, viz., that the available carbohydrate to fatty acid should exceed a ratio of  $1\frac{1}{2}$  to 1; furthermore, I try to give all my patients over 100 grams carbohydrate daily. Eggs, especially the yolk, contain a relatively large amount of cholesterol; I therefore limit eggs to one or two daily. Whether or not the iodides do any particular good in arteriosclerosis is an open question. However, the idea seems respectable for its antiquity, and I use iodides in some form in all my cases.

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#### DISCUSSION

DR. A. H. MARSHALL, Charleston: If you start to use insulin do you have to keep it up?

DR. DONALD R. BLACK, in closing: It depends entirely on the severity of the diabetes in the individual case. When insulin was first introduced it was used in almost all cases. Now I usually try to see how long I can keep my patients from using insulin. Insulin simply supplies the lacking pancreatic hormones. The amount needed will be based on the amount of pancreatic functioning tissue and will vary with the individual. A case which may be severe when first seen can frequently remain sugar free on a calculated diet without insulin. Many of my diabetic patients who formerly took insulin are able to handle themselves satisfactorily now with diet alone. Therefore there is no good reason why a diabetic once on insulin should always require insulin. A point of interest in this connection, and probably the point you had in mind, is the fact that it is dangerous to take a severe diabetic off of insulin abruptly. Sometimes sudden changes throw them into coma. This applies, however, also to marked variations in diet. The only difference between the diabetic individual and non-diabetic is the fact that the diabetic cannot convert glucose into glycogen.

## TONSILLECTOMY AND ADENOIDECTOMY

A FEW POINTS NOTED IN THE LITERATURE WITH  
COMPARISON OF OUR RESULTS IN 370 CASES\*

O. EARL WHITSELL, M.D.

ST. JOSEPH, MO.

I wish to beg the indulgence of the Society for a brief discussion of the trite subject of tonsillectomy and adenoideotomy.

Seated in its bed between the pillars and extending from its capsule, which rests on the pharyngeal constrictor, to its crypts, which present in the oropharynx; with its upper pole hidden beneath the palate and its lower pole concealed by the base of the tongue, the palatine tonsil together with its closely related structure the adenoid,—which is perched high on the posterior pharyngeal wall,—creates some very interesting clinical problems.

\*Read before the Buchanan County Medical Society, St. Joseph, May, 1930.



Just when the operation of tonsillectomy originated is not definitely known but it appears to have been frequently done before the time of Celsus, 10 A. D., in whose writings we have the first description of removal of the tonsils. Aetius, 490 A. D., warns operators against severe hemorrhage. Paulus Aegineta, 750 A. D., gives the precaution of operating when the tonsils are "white, constricted and having a narrow base." Albucasis, 1120 A. D., apparently confined his operations to tonsils which were "round, whitish and with a narrow base." The operation was then lost sight of until revived in 1509 by Ambroise Paré who, it is said, recommended tracheotomy followed by strangulation of the tonsils by a ligature when serious enlargement existed. From this time on the operation has gradually been improved by Severini, 1637, Richard Wiseman, 1676, Mascati, 1734, Physick, who designed the first guillotine modeled after the old uvulotome, Mackenzie and Ballenger who, in 1899, popularized dissection and snare. In 1911 Greenfield Sluder introduced his dull-bladed guillotine which enucleates the tonsil in its capsule by taking advantage of the alveolar eminence. In this manner the operation has evolved from finger dissection and tonsillotomy by hook and bistoury to the modern methods of complete tonsillectomy.

The faucial tonsil, according to G. B. Wood<sup>1</sup> consists of a capsule, follicles, interfollicular tissue and crypts. The follicles are composed of large mononuclear cells which by mitosis produce small lymphoid cells. This is the only function about which there is practically unanimous agreement. The crypts are formed by invagination of the surface epithelium but as it dips into the tonsil the subepithelial tissue is lost and in many places even the basement membrane disappears. Since the crypts penetrate deeply into the substance of the tonsil these blind pockets, lined for the most part with only a thin layer of epithelium, offer an ideal structure for absorption. The lymphatic drainage of the tonsil is from the crypts and follicles through the lymphatic radicles in the trabeculae to the main efferent lymph vessels which lead to the cervical nodes. Afferent lymphatics have not been indisputably demonstrated.

The blood supply is from four main arterial branches. They are, (1) the tonsillar ramus of the external maxillary, (2) a large branch of the lingual, (3) a pharyngeal ramus of the ascending pharyngeal and (4) the descending palatine, a branch of the internal maxillary. The first two enter the lower and the last two enter the upper portion of the tonsil and give four bleeding arterial points at operation, two above and two below.

In 1900 William Hunter<sup>2</sup> pointed out the connection between oral infection and systemic disease. The tonsil when infected heads the list of these foci. Osler<sup>3</sup> speaking of focal infection says, "The local infection may be situated in many parts of the body but in the majority the situation is in the mouth and tonsils." In a series of 218 cases of tonsillectomy Hambrecht<sup>4</sup> reported 93 per cent pathological with the hemolytic streptococcus isolated in most of the cases. In nearly every instance the same organism was isolated from the adenoid tissue as from the tonsil in that patient.

It is not always a simple matter to decide that the faucial tonsils are the chief focus and many times their removal is advised after all other foci, such as teeth, sinuses, gallbladder, etc., have been eliminated. However, the literature suggests a fairly uniform set of main indications which may be summarized as follows: (1) Frequent attacks of sore throat, (2) mouth breathing, (3) repeated attacks of otitis media, (4) cervical adenitis which is found to be aggravated by attacks of nasopharyngitis, (5) peritonsillar abscess, (6) evidence of the rheumatic syndrome. Physical findings as suggested by many authors, such as dusky red anterior pillars, chronically enlarged tonsils which may cause aural symptoms, buried tonsils with cheesy material in the crypts, and palpable submaxillary glands, are all very important guides to the decision as to the fate of the tonsils. Systemic disease such as rheumatism condemns the tonsils unless they are positively normal. The points to be emphasized in speaking of indications for removal of tonsils and adenoids are, first, careful general physical examination to be sure that the tonsils are definitely a menace and, second, their complete removal at operation. Rhoads and Dick<sup>5</sup> stress these points, saying there are clinical cases of patients with systemic disease attributable to foci of infection that failed to improve after tonsillectomy but did improve strikingly after removal of the pieces of tonsillar tissue remaining from the first operation.

Contraindications are perhaps more deserving of consideration than indications. Moore<sup>2</sup> mentions the following: (1) Acute inflammation of the tonsils, (2) cardiovascular disease, (3) vascular disease (anemia, pernicious anemia, leukemia, Hodgkin's disease, hemophilia, purpura, etc.), (4) menstruation, (5) kidney disease, (6) diabetes, (7) status lymphaticus, (8) abnormal enlargement or distribution of blood vessels, (9) acute otitis media.

Much tonsil work has been done in recent years and in many instances no record of results was kept. This state of affairs naturally led to the question of justification of the re-

removal of tonsils and the after-effect of this procedure. Many interesting, educational, and in some instances, alarming facts have been brought out in reports of cases in the literature.

G. A. Smith<sup>6</sup> reports a woman, aged 31, who died of gas bacillus infection of the throat, neck and face following tonsillectomy.

Irving S. Wright<sup>7</sup> reports a case of bilateral gangrene of the feet apparently the result of removal of tonsils and adenoids.

Zingher<sup>8</sup> in a report of cases warns that "infection with the diphtheria bacillus and development of the disease clinically may occur a week or two after tonsillectomy and before the wound has completely healed." When immunity to diphtheria is absent and there are virulent bacilli in the throat and tonsillectomy is done diphtheria occurs.

Daland<sup>9</sup> reports two fatalities from pneumonia following tonsillectomy. From his experience he warns the profession that pneumonia and lung abscess may occur "one or more weeks after the operation and in such cases the casual relation of tonsillectomy is frequently overlooked."

Tumpeer and Levinson<sup>10</sup> report two fatal cases. One was done three weeks following an attack of sore throat, the other during an attack of chorea. As a result of their experience they believe "it is the part of safety to wait until all local inflammation has subsided before creating any form of trauma to the region."

These results tend to emphasize the point that the removal of tonsils and adenoids should be done between acute attacks. There are in the literature<sup>11</sup> case reports of tonsillectomies on children with sore throat and a temperature of 104° F. with satisfactory results. These, however, are sporadic. The main body of observers counsel surgical activity only when the local inflammatory process has completely subsided.

Turner<sup>12</sup> studied three groups of cases to determine the incidence of previous tonsillectomy in subacute bacterial endocarditis. In group 1 were cases of rheumatic fever and chorea; those of group 2 were cases of rheumatic fever; group 3 consisted of individuals suffering with subacute bacterial endocarditis. Turner concluded: "There seems to be a possibility that tonsillectomy performed in the cases of rheumatic fever or rheumatic heart disease may tend to prevent subsequent subacute bacterial endocarditis."

Robey and Freedman<sup>13</sup> from their observations conclude that complete enucleation of the tonsil offers the best preventive of rheumatic fever and therefore rheumatic heart disease.

They feel that tonsillar remains are often as formidable as the original tonsil.

A. D. Kaiser<sup>14</sup> in noting the effect of tonsillectomy on the general health of 1200 children, concluded that tonsillectomy offers considerable relief from sore throat, head colds and mouth breathing. He feels that it lessens the occurrence of discharging ears and their complications. Adenopathy in the cases observed was not always relieved and laryngeal, bronchial and lung infections occurred equally in those operated upon and those not operated upon. Scarlet fever and measles were less severe and diphtheria was lessened in the group operated upon. No effect was noted on chorea or rheumatism. There was a lessened incidence of heart disease, and malnutrition was definitely less in the tonsillectomized children.

The complications most to be feared are hemorrhage and postoperative pulmonary infection. From early times hemorrhage has been recognized as a complication apt to occur in any case. Of course there is more bleeding in complete tonsillectomy than in tonsillotomy because of cutting larger vessels in the former operation. An estimate of the clotting time is now required in most hospitals.

Richards<sup>15</sup> studied a series of 500 consecutive cases to determine the relation between coagulation time and hemorrhage and reported that there were six hemorrhages in patients from the ages of 7 to 29 and none of their coagulation times exceeded 4 minutes. Other cases in this series had coagulation times as high as 8½ minutes. Methods of determination were, (1) Sluder glass slide, (2) watching a blood drop under the microscope (3) capillary tube. Richards feels that the coagulation time should be determined in all cases.

Greenfield Sluder<sup>16</sup> says, "The blood should be clotted before operation. Subsequent bleeding is very much less when the blood clot is normal."

Wells<sup>17</sup> says that Yerger reports 38 troublesome hemorrhages out of 1000 cases at Johns Hopkins. Cocks<sup>18</sup> in 1912 reported that out of 200 cases a month at the Manhattan Eye and Ear Hospital, 12 cases bled. Douglas<sup>19</sup> reports six bleeders out of a hundred cases at the Postgraduate Hospital in New York. These percentages of occurrence seem to be representative.

As a precaution against hemorrhage following tonsillectomy all authors stress a dry fossa before the patient leaves the table. Wells<sup>17</sup> counsels a careful examination of the anterior pillars to rule out an aberrant internal carotid artery. He advises waiting at least two weeks following an acute attack and of course men-



tions ruling out of vascular and circulatory diseases.

Lung abscess following tonsillectomy occurs more frequently than was formerly supposed. Accurate percentage of its occurrence is hard to determine because many of them develop after they have passed from the hands of the surgeon and so long after the operation that the relation between the tonsillectomy and the lung infection is not recognized. The pathogenesis is the basis of argument but most men seem to feel that aspiration causes a large majority of the cases with embolism accounting for an occasional one. Myerson<sup>20</sup> in bronchoscopic examination of 200 cases immediately after tonsillectomy, demonstrated aspirated material in the trachea of 155 of them. May, Thoburn and Rosenberger<sup>21</sup> in a series of tonsillectomies in which 2 to 3 c.c. of iodized oil were instilled into the pharynx before the removal of each tonsil and the adenoid, and constant sponging was practiced to prevent aspiration, took roentgen rays of the chest before, during and after the operation. They demonstrated that in several instances aspirated material appeared in the bronchial tree during operation and was eliminated before the operation was completed. Myerson believes that defective lung tissue and a hampered expulsion apparatus must hold first place in the production of suppurations of the chest following tonsillectomy. Ochsner and Wellwood<sup>22</sup> reported that after a preliminary injection of a local anesthetic into the peritonsillar tissue, iodized oil when swallowed passed entirely into the bronchial tree in five cases studied. This apparently vindicates the aspiration theory even under local anesthesia.

In our series of 370 cases 197 operations were performed under ether, 149 under nitrous oxide, and 24 under local anesthesia. There were 8 primary and no secondary hemorrhages under ether, an average of 4 per cent. Under nitrous oxide one secondary hemorrhage occurred and no primary hemorrhage; the bleeding in this case occurred on the fifth post-operative day and stopped spontaneously. This one case made an average of .7 per cent. Out of the 24 local anesthetics there were 5 secondary hemorrhages and one primary hemorrhage. Three of these stopped spontaneously and three were controlled by light pressure. The average under local anesthesia was 25 per cent. As described in the literature the hemorrhages were controlled by ligature, suturing of pillars, transfusion, etc. We were able to control the bleeding in our cases by mild pressure. Hemorrhages occurring in the first 48 hours were considered primary, and secondary hemorrhages those which occurred after this interval of time had elapsed.

Our coagulation times were done by the

Sluder glass slide method and the relation between coagulation time and hemorrhage seemed to be in inverse proportion.

All operations under general anesthesia were Sluder tonsillectomies and LaForce adenoidectomies. Those under local anesthesia were done by dissection and snare.

Our follow-up with regard to lung abscess is not complete. However, after getting as much information as possible concerning our cases we have no record of a postoperative pulmonary infection.

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#### DIAGNOSIS OF LARYNGEAL DISEASE

Chevalier Lawrence Jackson, Philadelphia (*Journal A. M. A.*, Nov. 1, 1930), says that hoarseness, the most common symptom of laryngeal disease, always calls for careful diagnostic study. Too often patients with this complaint are sent away with a casual diagnosis of "laryngitis." As a result, the patient with early and easily operable cancer, or incipient tuberculosis, is allowed to go on for months without an accurate diagnosis and appropriate treatment. He reports on a series of cases which demonstrates the value of fluoroscopic and roentgenographic study of the neck in the diagnosis of laryngeal lesions. The roentgenologist can now detect inflammatory and neoplastic processes in their incipience, when they are causing only the mildest symptoms.

## WASHINGTON UNIVERSITY CLINICS

### PATHOLOGICAL CALCIFICATION

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Calcification is a deposit or precipitate of calcium in the tissues. It occurs normally in those structures which later constitute the skeletal framework of the body. It is also seen in many other tissues under a wide variety of conditions. No matter where the deposit occurs its composition appears to be constant and consists of about 86 per cent  $\text{Ca}_3(\text{PO}_4)_2$ ; 13 per cent  $\text{CaCO}_3$  and one per cent  $\text{Mg}_3(\text{PO}_4)_2$ .<sup>1</sup> The calcium must come from the circulating blood where it exists in a concentration of about one part in 10,000 (10 mg. per 100 c.c. serum). This value remains extremely constant in healthy individuals and changes only slightly with varying reaction, with concentration of other salts or with huge additions of calcium in the food. By excretion in urine and stools the calcium balance is usually quite accurately maintained. Large excesses in the diet are eliminated by increased excretion in the feces, and usually without great variations in the urine. Even when the balance is positive the excess calcium disappears in the tissues and the accumulation is only temporarily reflected in the blood.

In the formation of the skeleton the deposit of calcium is known as ossification and is a highly organized and complicated process. It occurs in young connective tissue which must undergo certain preliminary changes before the actual calcification can take place. According to Leriche<sup>2</sup> there is first a sort of gelatinous edema in which rather amorphous osteoid tissue, closely resembling hyaline material, is laid down. These changes occur in parts farthest from the circulation. While normally they appear only in the connective tissue of the skeleton, similar transformations may with pathological states occur in other parts of the body. It seems that true bone may form wherever these preliminary changes have taken place. Into this specially prepared connective tissue calcium is deposited. It is known that the precipitation is influenced by a great variety of conditions among which may be mentioned the degree of alkalinity of the blood, the action of sunlight, the ingestion of vitamin D, the phosphate and calcium concentration of the blood and the administration of parathormone.

In general, abnormal calcification can be defined as any deposit of calcium which occurs

outside of the skeleton, with a possible exception of the calcium deposit of the pineal body seen in 50 per cent of normal adults. For the purpose of discussion, one may consider the following forms of pathological calcification: (1) Deposit of calcium in dead or dying tissue; (2) metastatic calcification; (3) calcinosis; (4) heterotopic bone formation or actual ossification in tissues other than the skeleton.

#### CALCIFICATION IN DEAD OR DYING TISSUE

Calcium deposit in dead or dying tissue is the best known form. It occurs in general wherever caseation, necrosis or hyalinization is seen, or where the vitality of the tissues is diminished by imperfect blood supply. The list of clinical conditions in which it may be seen is much too long to enumerate, but tuberculous lymph nodes, uterine fibroids, thyroid adenomata, healed abscesses and infected serous cavities, such as purulent pleurisy and pericarditis, may be mentioned as among the common sites.



Fig. 1. Extensive calcification of uterine fibroids in patient observed at Barnard Free Skin and Cancer Hospital.

In this connection one may mention the calcification of retained fetus which often exhibits extensive deposits of calcium in soft tissue as well as in the skeleton itself.

The reasons for the deposit of calcium in ill nourished tissues are by no means clear. As in the formation of bone, calcification tends to occur at points farthest from an adequate circulation. It may be noted also that there is a similarity between hyalinization and those changes in connective tissue which precede





Fig. 2. Lithopedion of 8 months' fetus. (From Bainbridge, *Am. J. Obst. & Gynec.* 45:31, 1912.)

normal bone formation. It seems possible that in hyalinization and even in caseation or necrosis, certain chemical changes appear which in themselves favor the precipitation of calcium.

#### METASTATIC CALCIFICATION

Metastatic calcification was first described by Virchow.<sup>3</sup> The circumstances under which he observed it are interesting. In 1855 he wrote the following description which has been rather freely translated:

Several years ago I was asked to perform the autopsy on the body of a young girl whose illness had baffled the diagnostic and therapeutic skill of her physicians. From one of the best families, beautiful and promising, she had without any recognizable cause begun to complain of excruciating pain in almost all parts of her body. In spite of careful management by experienced physicians, her disease progressed more and more. Her nutrition began at last to be impaired and death brought an end to her pitiful suffering. Clinically no localized lesions were found to explain her illness. Autopsy revealed numerous and widespread tumor nodules in almost all of the larger bones of the skeleton, particularly in the pelvis and the skull. These nodules never invaded the surface of the bone but lay as great disorderly moth-eaten holes in the interior. The destructive process appeared to have an important relation to the constitutional aspects of the disease.

It was, perhaps, not surprising that I found in investigating the kidneys, great masses of a sandy-white precipitate which was composed chiefly of carbonate and phosphate of lime. But I was not a

little astonished when in dissection of the lungs, I found grayish-white areas dry but air-containing, rough to the feel and offering a great resistance to the knife. Also in the mucosa of the stomach there were similar sandy areas. A more careful investigation showed that both the parenchyma of the lung and the gastric mucosa were filled through and through with calcium salts.

Virchow also observed metastatic calcification in nephritis and in osteomyelitis. It has since been seen in destructive lesions of bone among the most frequent of which are multiple myelomata and *ostitis fibrosa cystica*<sup>4</sup> (Von Recklinghausen's disease) a malady associated with parathyroid hyperplasia, with bone cysts, giant cell tumors and general decalcification of the skeleton. Its occurrence has not always been limited to obviously destructive bone lesions but has also been observed in the osteosclerotic anemia<sup>5</sup> of Albers-Schönberg, a condition characterized by great thickening of the shafts of bones and by partial obliteration of the marrow cavity. Experimentally, it may be produced at will by the ingestion of toxic doses of parathormone or irradiated ergosterol.

Whatever its cause, the distribution of metastatic calcification is constant. The lungs, stomach and kidneys are almost always involved and there may be deposits in the pulmonary veins, the walls of the left auricle, the aorta, and, in extreme cases, in the peripheral arteries.<sup>4</sup> The deposit seems most likely to appear in those portions of the body from which acid is excreted; in the alveolar walls of the

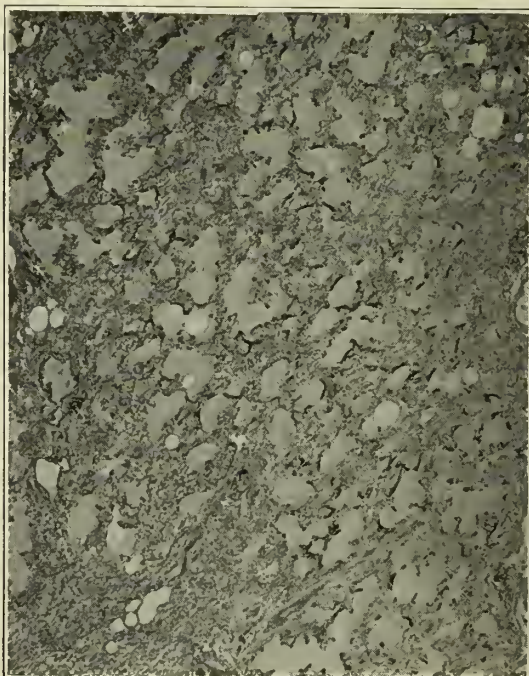


Fig. 3. Metastatic calcification of lung showing deposit of calcium salts in walls of the alveoli.

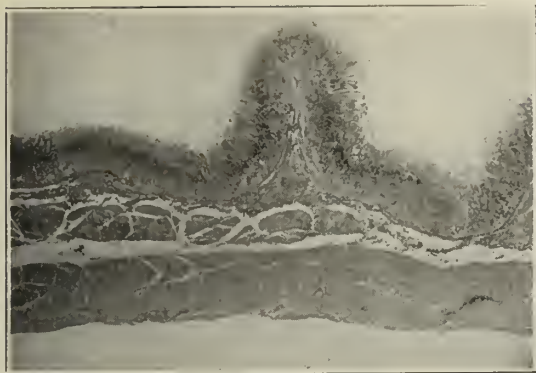


Fig. 4. Metastatic calcification of gastric mucosa indicated by black line at base of gastric glands.

lungs, from which carbonic acid is lost; in the convoluted tubules of the kidneys which are thought to be active in the elimination of acids; and in the gastric mucosa from which hydrochloric acid is secreted.

In all of the conditions which have been carefully studied metastatic calcification has been accompanied by hypercalcemia, by increased urinary excretion of calcium and, in several cases, by large kidney stones,—phenomena which may possibly explain its not infrequent association with renal disease. In the presence of hypercalcemia a serious kidney lesion might be the additional factor essential for precipitation in tissues.<sup>6</sup> Since Virchow, the association has been noted by a number of observers. Re-



Fig. 5. Calcification of brachial arteries in the case reported by Magnus-Levy. (*Deutsche med. Wchnschr.* 40:153, 1914.)



Fig. 6. Scleroderma showing tightness of skin of face and proliferation of arms and hands.

cently we have observed, with Dr. Howard McCordock, of the Department of Pathology, a case of hypertensive nephritis in which there were extensive deposits of calcium in the alveolar walls of the lung and in a thrombus of the right auricular appendage. There was also a necrosis of cardiac muscle some bundles of which were infiltrated or actually replaced by calcium. In this case no bone lesions were found and a disturbance of calcium metabolism was not suspected during the life of the patient.

The explanation of calcification in arteriosclerosis is by no means clear. Ordinarily it is possible to find necrotic areas in the walls of arteries and to explain the deposit of calcium on the same basis as in any other ill nourished or dead tissue. Some cases of blood vessel calcification, however, seem to be influenced by other factors. In Paget's disease, the well known osseous changes may be accompanied by an extreme general calcification of arteries. Occasionally such changes may occur in arteries without accompanying bone disease.





Fig. 7. Roentgen ray detail of both thumbs and third finger of right hand of patient shown in figure 6, exhibiting extensive pathological calcification.

Magnus-Levy<sup>7</sup> reported a case of a woman of 47 suffering from chronic cardiac decompensation. Examination revealed the calcification which is apparent in figure 5. The smaller peripheral arteries were free of involvement but there was a calcified nodule on one forefinger. Although these cases of arterial disease are mentioned under the heading of metastatic calcification the evidence that they are in any sense similar is almost entirely lacking.

#### CALCINOSIS

Calcinosis is a term which has usually been applied to abnormal calcification of the skin and subcutaneous tissue. The literature has been recently reviewed by Durham.<sup>8</sup> It has been observed in Raynaud's disease<sup>9</sup> but is seen in its most striking form in scleroderma. The condition is well illustrated by a patient who was recently observed at Barnes Hospital. He was a boy of 16 who exhibited the characteristic symptoms of scleroderma with tightly drawn, thickened skin of face and hands with pigmentation of irregular distribution and with greatly impaired circulation of the fingers. There was no definite necrosis or gangrene.

Calcium deposits were apparent as can be seen in figure 7. The condition has sometimes been observed around joints and has been referred to in the literature as "calcium gout." It oc-



Fig. 8. Scleroderma showing calcinosis of skin of face. (Reported by Brunsgaard, *Dermat. Ztschr.* 53:80, 1928.)



Fig. 9. Calcinosis universalis showing deposit of calcium in hand, shoulder, knee, mesentery, elbow and thigh. (Reported by Von Gaza, *Fortschr. a.d. Geb. d. Röntgenstrahlen* 19:372, 1912.)

curs most often in the extremities and in parts in which the circulation is obviously impaired. As such it might be considered simply as another form of calcification in dead or dying tissues although its occasional occurrence in other parts, as in the face of the girl shown in figure 8 and whose case was reported by Brunsgaard,<sup>10</sup> may cast some slight doubt upon this explanation.

There have been reports of a few cases in which without any of the stigmata of scleroderma or Raynaud's disease there is a most extensive calcification of the skin and subcutaneous tissues. These cases, the first of which was observed by Versé<sup>11</sup> have been termed *calcinosis universalis*. The extremely widespread character of the calcium deposit is well shown in the case of Von Gaza,<sup>12</sup> the photographs of which show involvement of the forearm, hand, shoulder, knee, mesentery and thigh (fig. 9).

#### HETEROTOPIC BONE FORMATION

Although this form of abnormal calcification always occurs in connective tissue the variety of structures involved is considerable. Hematomata may be ossified. Osteomata may be formed in the midst of muscle and have been reported in the interior of nerves. Ossification has been frequently seen about necrotic

areas in which calcification of a simpler sort has already taken place. Similarly it may be found in the hyalinized membrane about calcified tubercles. Occasionally ossification has been noted in scars, in transplanted aponeuroses and in wounds after repair of the bladder. The necessary factors seem always to be a ground work of young connective tissue and a readily available source of calcium.

Perhaps the most frequent form of heterotopic bone formation is seen in the condition which has been called *myositis ossificans*. This may be of two forms, either the so-called "rider's bone" which forms in the thigh muscles as a result of hematoma, or a serious systemic disease which is known as *myositis ossificans progressiva*. This is a congenital disease in which the victims appear at birth entirely healthy except for shortness and adduction of the great toes. At some time in early life bone formation begins apparently in the muscle and progresses until the individual becomes a hopeless invalid. The nomenclature of the disease is incorrect. It has been shown that the ossification does not take place in the muscle itself but is located in the aponeuroses, tendon sheaths, fasciae and periosteum. There is some evidence that in such bone formation there is, as in the normal skeleton, first a gelatinous swelling or edema, then formation





Fig. 10. Skeleton of case of myositis ossificans progressiva. (From Stonham, *Lancet* 2:1485, 1892.)

of osteoid tissue and finally a deposition of calcium.

#### SUMMARY

It appears that the deposit of calcium is affected by a large number of factors among which should be noted: diminished blood supply, formation of osteoid, hyaline or necrotic tissue, degree of alkalinity of the blood and tissues, calcium and phosphate concentration of the blood, and the presence and amount of vitamin D and parathormone.

Most forms of abnormal calcification seem to depend upon diminished blood supply and are preceded by changes somewhat resembling hyalinization. In metastatic calcification, however, there is hypercalcemia which results in the deposition of calcium in apparently normal and well-nourished tissues which have undergone no obvious preliminary changes.

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#### PROTECT CHILDREN FROM CONTACT WITH INFECTION

Children's colds are particularly serious because the smallness of the structures concerned favors the passage of germs from the back of the nose into the ears and mastoid and thence through the soft bone of the skull into the brain. A baby may be acutely prostrated by an infection that would produce only the mildest symptoms in an adult, Dr. Rachel Ash warns in the September issue of *Hygeia*, the health magazine.

A cold is always an infection and it is always transmitted directly from one person to another. Parents should therefore guard their children from contact with persons already infected—members of the household as well as outsiders. Thoughtless carresses bestowed on children by adults who may be incubating colds are a major factor in the spread of these infections.

The rule of protection works both ways. Even with the utmost precautions children have colds. When they do they should be kept strictly away from others. Remember that discharges from the nose and throat are laden with germs. Boil all handkerchiefs or, better still, use paper ones that can be burned. Keep the eating utensils separate and wash them in hot water with lots of soap.

Keep your child away from germs so far as is practicable. Build up his general resistance by a proper hygienic regimen. Watch the atmosphere of your home to keep the temperature between 68 and 70, the air moist and freely moving.

#### ATROPHY OF LIVER DUE TO CINCHOPHEN PREPARATIONS

After reviewing numerous cases reported in the literature, Meyer A. Rabinowitz, New York (*Journal A. M. A.*, Oct. 25, 1930), reports seven new cases. He stresses several points: Cinchophen preparations may produce liver damage of varying severity to fatality. This danger cannot be avoided by small doses, intermittent use, large amounts of fluid or associated use of sodium bicarbonate. Since cinchophen is not a specific for arthritis, gout, myositis, neuritis or allied states, indiscriminate use and counter prescribing is dangerous, and the drug or its congeners should not be used in cases difficult of careful control and observation. All cinchophen preparations and congeners should have their content advertised and noted on the container in which they are dispensed. Protein sensitization of the liver may be responsible for the subsequent production of the liver damage by cinchophen. Research work is needed to determine the factors in the production of liver damage and to prevent this dangerous effect.

# THE JOURNAL

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DECEMBER, 1930

## EDITORIALS

### THE TERCENTENARY OF QUININE

St. Louis was the center of interest for the pharmaceutical world, October 31 and November 1, as the scene of an international celebration of the three hundredth anniversary of the first recognized use of cinchona. The Quinine Tercentenary, held under the auspices of the Missouri Botanical (Shaw's) Garden, was attended by about 300 eminent men from all parts of this country. Foreign participants included A. R. Van Linge, of Maarssden, head of the Nederlandsche Kininefabriek, world's chief quinine manufacturer; M. Kerbosch, of Java, head of the Dutch Governmental experiment station and cinchona plantation, the largest single producer; Karl Merck, of Darmstadt, Germany; and W. D. Besant, municipal director of Parks and Botanic Gardens of Glasgow, Scotland.

Functions of the observance comprised a scientific session at Shaw's Garden, the Henry Shaw dinner at the Hotel Jefferson, an interesting and instructive visit to the 1600-acre Shaw's Garden extension at Gray Summit, and a reception at the home of Dr. George T. Moore, director of the Henry Shaw School of Botany.

Exhibits at the garden museum, the old Henry Shaw residence, included the first complete display ever assembled of the bark and all its derivatives and even logs of the tree; the frontier practitioner's paraphernalia of Dr. John Sappington, of Arrow Rock, Missouri, pioneer of the use of quinine for malaria in the Middle West; and old volumes showing how the modern spelling of cinchona originated and describing the historic occasion of the celebration.

For many decades it has been thought that the first recognized use of cinchona bark for malaria occurred in 1638, when the Countess of Chinchon, wife of the vice-governor of Peru, was cured of malaria at Lima. Spread of the

treatment to Europe dates from that time. In the exhibition was a copy of the "Pharmacographia" of Fluckinger, in which Anton Hogstad, Jr., pharmacognosist to Shaw's Garden, discovered an account of the use of quinine in 1630 by Don Juan Lopez Canizares, Corregidor of Loxa, who recommended it to the Countess. Research by Professor Hogstad and Dr. Moore substantiated that account, and it was further borne out by the independent investigations of an English scientist. Also included in the tercentenary display was a 200-year-old copy of the "Genera Plantarum" of Carolus Linnaeus, omitting the first "h" from the name of the "cinchona" tree.

Each phase of the history, preparation and use of the drug was described by an outstanding man in the particular field concerned. Prior to its general use, they estimated, the world death rate of malaria was 2,000,000 a year. Its adoption was opposed by the galenists but was a step toward casting off the shackles of empty tradition. Discovery of the alkaloid came in 1820, three years after the basic salt-forming properties of morphine had been demonstrated as an important phase of the transition of organic chemistry to a rational basis. An attempt to synthesize the alkaloid resulted in the accidental production of magenta, first of the impressive modern line of synthetic dyes.

Dr. George Dock, of Pasadena, California, formerly of Washington University School of Medicine, pointed out that intermittent fevers were a cause of the decadence of ancient Greece and the economic and cultural decline of imperial Rome. Dr. Kenneth F. Maxcy, of the University of Virginia, presented a thesis on "We have passed through the period of chemotherapy and are entering the period of chemo-immunology." He said Laveran's conclusion that quinine cured malaria because it killed the parasite, or a similar conception of the action of drugs in parasitic diseases, was the basis of Paul Ehrlich's brilliant experiments in chemotherapy, but that Ehrlich's original hypotheses were only partially correct. Recent experiments, he said, have shown that the direct toxic action of quinine on the parasite is not the only factor in its effect in malaria.

"It has been realized in this disease, as in others, in which certain chemical compounds have been found to be highly specific, that the human body is not a test tube," Dr. Dock remarked. "The processes which bring about recovery from a parasitic infection and expulsion of the parasite from the entire body are complex biological reactions and not simple chemical ones. The drug may play a role, even an important role, but its action cannot be di-



vorced and considered entirely separate from those natural phenomena which are directed toward the same end."

Prof. Edward Kremers, of the University of Wisconsin, told a story of a last century Milwaukee druggist who dispensed quinine for calomel as a remedy against fever and ague and discovered his mistake with horror. To his enormous relief the patients reappeared the next day, too hale and hearty to be the ghosts which he had half expected to see.

The remarkable history of Dr. John Sappington and his "anti-fever pills," probably a patent medicine but of prime importance in controlling malaria in the Mississippi Valley, was told by Prof. Robert J. Terry, of Washington University School of Medicine. A century ago, Dr. Terry said, fever was a deadlier enemy of the pioneer than famine or Indians. Cinchona was known but distrusted. The fever, decimating parties of settlers before they reached the banks of the river, was treated in the orthodox manner with purges, emetics and bleeding.

Sappington was born in Maryland in 1776 and practiced with his father at Nashville, a malarial territory, until, at the age of 38, he went to the University of Pennsylvania for his first formal studies in medicine. There a teacher lamented to him of a "difficult" malaria patient, one that failed to recover no matter what burdens were removed from his alimentary tract and his circulation. The student ventured to suggest that he could drive out the fever in 48 hours, and did it with quinine.

From Arrow Rock his reputation in the treatment of fevers spread. His practice covered four counties and consultations took him into Arkansas, Illinois and even Indiana and Tennessee. In 1832 he retired to his farm to send out his pills by the hundred. His last work was the preparation of a book telling laymen how to treat malaria with quinine, disclosing that quinine was the only effective ingredient of his pills and even giving the formula so that the fever-ridden could make the pills for themselves. His writings indicated that he knew the preventive value of quinine. It was due to this man's life work, Dr. Terry concluded, that pioneers could make their homes in the West without fear of fever.

Dr. Moore, in the address of welcome which opened the tercentenary observance, pointed out that quinine has "indirectly at least, been the means of creating wealth beyond anything we can imagine."

"Botanical or herb gardens had their origin in the growing of plants for the benefit of man," he related. "While of late the tendency in medicine has been away from drugs, it is

interesting to recall that of the few real specifics we have for disease practically all are more or less associated with plants. Even within the last few years there have been added to the pharmacopeia such important products as those from the Indian chaulmoogra oil tree and the Chinese Ephedra. Indirectly the plant frequently takes a commanding position in the battle against the enemies of mankind. Only recently it has been announced that the blood-sucking tsetse fly was peculiarly sensitive to extracts of *Pyrethrum* as well as allied drugs like delphinine and veratrine.

"Perhaps the field of materia medica has been too much neglected of late. The old herb doctor practiced not only under the cloud of superstition but also in the light of experience. What appeared to be crass ignorance may have been accumulated knowledge. Could anything seem more absurd than the practice of giving charred sponge for goiter! Yet the marine sponge may run as high as 4 per cent iodine. And just now comes the news of the discovery of a preventive for goiter derived from certain plants.<sup>1</sup> I need not refer to the modern use of the drug now known to be present in the glands of the frog skin, an ingredient which played so important, yet seemingly useless, a part in the Chinese pharmacopeia.

"As Dr. Harvey Cushing wrote not long ago: 'An independent botany has emerged from the search in all corners of the earth for medicinal herbs that conformed to the therapeutic law of signatures; our medical schools no longer have their physick gardens, yet who knows what of value equal to digitalis may still be hidden in plants were there modern Witherings to look for them?'"<sup>2</sup>

#### FELLOWSHIPS IN PSYCHIATRY

The phenomenally rapid growth of interest in all aspects of extramural psychiatry in recent years has created several situations of considerable gravity, of which the shortage of adequately trained personnel is by far the most pressing, according to the National Committee for Mental Hygiene. The mounting interest of communities in child guidance and other types of mental hygiene clinics has already exhausted the never sufficient supply of specially trained psychiatrists for this work, and unless physicians with the requisite training and aptitude can be secured in greater numbers either the establishment of many new clinic projects will be delayed or, worse, their functioning will be attempted by unprepared or poorly prepared staffs.

To assist in lessening some of this shortage of properly trained psychiatrists the National

1. Am. Chem. Sect. Science, October 27.

2. Science, November 22, 1929, page 488.

Committee for Mental Hygiene offers fellowships toward the acquisition of the special preparation required. These fellowships are designed to provide special training for physicians who have had previous hospital training in psychiatry but who wish to prepare themselves for extramural work in the fields of child guidance, delinquency, education, dependency, and industry.

Fellowships are open to physicians who are under thirty-five years of age, graduates of Class A medical schools, and who have had at least one year of training in a hospital for mental diseases maintaining satisfactory standards of clinical work and instruction. A longer period of hospital training is desirable. The fellowships cover a period of training approximately one year in length and carry stipends of \$2,000 to \$2,500 for the year.

Applicants able to meet the requirements will not be required to take competitive examinations nor need they file applications within stated periods. Arrangements will be made to begin work whenever mutually convenient to the applicant and to the director of the training center to which the applicant is first assigned.

Inquiries for further information should be sent to Dr. Frankwood E. Williams, Medical Director, National Committee for Mental Hygiene, 370 Seventh Avenue, New York City.

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## NEWS NOTES

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Dr. W. J. Smith, Hannibal, has returned from a visit abroad where he studied post-graduate work in diseases of the eye, ear, nose and throat. Nine months of his time were spent in Vienna. Dr. Smith formerly practiced in Shelbina but upon his return from abroad he established permanent offices in Hannibal.

The Williams & Wilkins Company, of Baltimore, publishers of scientific books and periodicals, announces that the American Society of Clinical Pathologists has decided to launch an official journal in which they will publish the proceedings of their annual meetings and other contributions on pathological subjects, and has requested The Williams & Wilkins Company to publish the magazine for the society. The title of the journal will be the *American Journal of Clinical Pathology* and the first number will appear in January, 1931. Dr. T. B. Magath of the Mayo Clinic has accepted the appointment as editor-in-chief. The journal will emphasize new methods in laboratory work, the material being primarily of a practical and clinical nature. It is designed to be useful and serviceable to the technician as well as to the pathologist. For the present the journal will be published bimonthly.

A report recently issued by the United States Public Health Service gives a summary of the value of medical treatment for leprosy at the National Leprosarium at Carville, Louisiana. More than 300 lepers are under treatment there. During the last ten years, 65 lepers have been discharged from the hospital as apparently recovered from leprosy and no longer a menace to the public health. The average period of hospital care varied from 5 to 9 years; the shortest period was one and one-half years and the longest was 17 years. The treatment is crude chaulmoogra oil by mouth, benzocaine-chaulmoogra oil by intramuscular injection, or ethyl esters of chaulmoogra oil by intramuscular injection. The basic treatment of leprosy is similar to that for tuberculosis and all lepers at the Leprosarium, no matter what medicines are given, follow a sanatorium regimen of food, fresh air and rest.

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Dr. Christian Deetjen, Baltimore, has had 75 operations performed upon him, all of them made necessary by overexposure to roentgen rays. The last operation was performed in October. Dr. Deetjen, together with Dr. Frederick H. Baetjer, roentgenologist of Johns Hopkins University, is known among roentgenologists as "the last of the Old Guard." Dr. Deetjen is a native of Austria. He obtained his medical education at the University of Wurzburg where Roentgen was director of the Physical Institute for two years before Dr. Deetjen graduated in 1890. When Roentgen announced the discovery of the roentgen ray in December, 1895, Dr. Deetjen became an earnest student of the ray and brought his knowledge of the then new science to Baltimore late in the '90s.

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Dr. R. Lee Hoffmann, Kansas City, was elected president of the southwestern branch of the American Urological Association at its meeting in Lincoln, Nebraska, October 31. Kansas City was selected as the next place of meeting.

Dr. Hoffmann has been in practice in Kansas City since 1920. He graduated from the Kansas University School of Medicine in 1915 and formerly practiced in Wichita, Kansas. He is a member of the Jackson County Medical Society.

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The Abbott Laboratories of North Chicago, Illinois, and the Swan-Myers Company, Indianapolis, Indiana, have consolidated their management. The offices will be in North Chicago but the laboratories of the Swan-Myers Company will be maintained in Indianapolis. The research facilities and personnel will be combined and enlarged.



A few months ago the editors of *Clinical Medicine and Surgery*, Chicago, invited American physicians to contribute essays on "The Future of Medicine," in competition for a first, second and third prize. A number of manuscripts were submitted and published in the July issue of the magazine. The awards have now been made as follows: First prize, S. Adolphus Knopf, M.D., New York; second prize, Edward H. Ochsner, B.S., M.D., F.A.C.S., Chicago; and third prize, J. Lewis Webb, M.D., Chicago.

Dr. John R. Snell, dean among Kansas City and Jackson County physicians, celebrated his eighty-ninth birthday anniversary, November 8, in his rooms at the Hotel Baltimore, Kansas City.

Dr. Snell has practiced in Kansas City for fifty-four years. He is a survivor of the old Southern school of physicians. He is invariably attired in Prince Albert coat, tall silk hat and carries a heavy, gold-headed cane. Bouquets of flowers, congratulatory notes, remembrances and a dinner given in his honor by the Baltimore Hotel marked the anniversary of his birthday.

Dr. Snell was born in Callaway County, Missouri, November 8, 1841. He joined the Confederate ranks as a private when he was nineteen. At the close of the Civil War he resumed his study of medicine previously begun with Dr. W. H. Hill, of Henry County. He graduated from the Missouri Medical College, St. Louis, in 1871 and still continues in practice. He located in Kansas City when it was a town of 33,000 and helped to organize the Kansas City University Medical College where he acted as dean for twelve years.

Four years ago Dr. Snell was honor guest at the president's dinner of the Jackson County Medical Society, an annual dinner given for those members who have just completed fifty years of practice.

St. Louis was included in a list of sites for endowed hospitals to serve as centers for the treatment of diabetes proposed by Dr. E. P. Joslin of the Harvard University Medical School to the International Medical Assembly at Minneapolis, October 23. Dr. Joslin proposed the establishment of ten such endowed hospitals as a means of lengthening the lives of diabetic persons which he believes medical science can now do if proper hospital facilities are made available. The other cities proposed by Dr. Joslin are Boston, New York, Philadelphia, Baltimore, New Orleans, Chicago, Cleveland, Minneapolis, and San Francisco.

The fifty-ninth annual convention of the American Public Health Association met in Fort Worth, Texas, October 27 to 30. Approximately 200 speakers appeared before forty-four sessions and symposiums of the meeting, including health officers, physicians, scientists, sanitary engineers, dietitians and experts in epidemiology, industrial hygiene and public health education and nursing. Public health workers from the United States, Canada, Mexico and Cuba attended the meeting.

Dr. Stuart Pritchard, Battle Creek, Michigan, was the guest of the St. Louis Medical Society, September 23, and gave an address on "Tuberculosis in Retrospect." Dr. Pritchard is vice president of the National Tuberculosis Association. He was a guest of the State Association at the Springfield meeting, 1929.

A committee of the Jackson County Medical Society which is to work toward the establishment of an endowment for the library and permanent home of the Society was asked at a meeting of the Council of the Society, October 21, to begin work at once. It is hoped that funds will be available for erecting new quarters by the time the Society outgrows its present location. Dr. E. H. Skinner is chairman of the committee.

A criminal court jury in Pittsburgh, Pennsylvania, decided October 30, that one who uses "radio waves" as an agency for the treatment of human ills is guilty of obtaining money under false pretenses. Dr. J. E. Johnston, Pittsburgh, conducted treatment by "aetheronics," as he termed the practice. Johnston testified that his method consisted of starting "waves" which became active when they clashed with waves that emanated from the human body. A witness for the defense attempted to demonstrate the theory upon the judge of the court but the judge, the witness admitted, did not "respond."

Seventy physicians and surgeons from Missouri and Kansas enrolled in the postgraduate clinic conducted by the University of Kansas extension service at Bell Memorial Hospital, Kansas City, Kansas, the week of November 18. Among Kansas City (Mo.) physicians on the program and the subjects on which they spoke were Drs. F. C. Neff, baby feeding; Ralph H. Major, treatment of diabetes; J. G. Hayden, injection treatment of varicose veins; Logan Clendening, diet trays for obesity and diabetes; Buford G. Hamilton, management of the occipito-posterior; and C. B. Francisco, treatment of "Ford" fractures.

Dr. Stanley S. Burns, St. Louis, was a guest of the Williamson County (Illinois) Medical Society at Marion, Illinois, November 18, and delivered an address on "Diagnosis and the Importance of Focal Infection in the Nose and Throat."

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The Mary Imogene Bassett Hospital, Cooperstown, New York, is planning the experiment of selling a year's medical and hospital service for a fee paid in advance. The fee for an individual is \$25 and for a family \$100. The hospital will have the right to decide whether a patient shall be treated at home or in the institution. Maternity cases will not be included. The Mary Imogene Bassett Hospital gives general service and is under independent management. It has seventy-four beds with an average of fifty-one patients.

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The fall tournament of the Physicians' Golf Club, and the Dentists' Golf Club, St. Louis, was held at the North Hills Country Club, October 17. A picked team of twelve members from each club played for the Dr. R. B. H. Gradwohl trophy, the physicians winning. This was the second contest between the two clubs. The first tournament on July 11 resulted in a tie, each club scoring 23 points. These facts are engraved upon the trophy which will be displayed at the St. Louis Medical Society. The following players took part: Physicians, Fred W. Bailey, James F. Clancy, I. R. Davis, Charles E. Eimer, D. L. Harris, Robert C. McElvain, Alphonse McMahon, Leith H. Slocumb, Otto J. Wilhelmi, V. V. Wood, and Walter B. Yost. Dentists, M. J. Collins, C. C. Cowdery, R. L. Dillinger, H. F. Hagemann, Edward E. Haverstick, E. H. Jacobsmeyer, O. A. Kelley, H. A. Lehmberg, R. J. Lundergan, J. A. Walther, and E. C. Will.

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Col. Wm. A. Wickline, M. C., U. S. A., Commanding Officer, Medical Supply Depot, St. Louis, who has had an extended tour of duty in St. Louis and who has frequently attended meetings of the St. Louis Medical Society, has been ordered to California to command the Medical Section, San Francisco General Depot, Fort Mason.

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Dr. Richard L. Sutton, Kansas City, was the guest of honor of the Atlantic Dermatological Conference at its annual meeting in Boston, November 10 and 11. In addition to his contribution to the clinical program, he gave an illustrated lecture descriptive of his recent African-Asiatic expedition, following the banquet at the Harvard Club on Tuesday evening.

Dr. Willard Bartlett, St. Louis, was a guest of the Medical and Surgical Association of the Southwest at its sixteenth annual meeting and clinical conference, held in El Paso, Texas, November 6, 7, and 8. Dr. Bartlett delivered an address on "A Modern Concept of the Indications for Thyroidectomy."

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The United States Civil Service Commission announces open competitive examinations for medical officer, associate medical officer and assistant medical officer. Applications will be rated as received by the Commission at Washington, D. C., until December 30, 1930. These examinations are to fill vacancies in the Departmental Service, Veterans' Bureau, Public Health Service, Indian Service, Coast and Geodetic Survey, and Panama Canal Service. Competitors will not be required to report for examination at any place but will be rated on their education, training, and experience. Applicants must have been graduated with a degree of M.D. from a medical school of recognized standing. The requirements of additional education and experience vary according to the grade. Full information may be obtained from the United States Civil Service Commission, Washington, D. C., or from the secretary of the United States Civil Service Board of Examiners at the post office or customhouse in any city.

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The St. Louis police department has equipped a number of police scout cars with radio receivers for the reception of hurry calls from headquarters. Recently the department observed that ambulance chasing lawyers appeared on the scene of the trouble simultaneously with and sometimes even before the scout cars appeared, when the nature of the trouble indicated that a damage suit might ensue. In one instance of an automobile accident the police discovered that a suit had been filed before the physician had been given time to make an adequate diagnosis of the victim's injuries. In order to outwit these ambulance chasing gentry of the legal profession, or at least to make it as unprofitable as possible, the police department now radios the scout cars to "Go to (giving the address) and make a thorough investigation of any irregular condition you may find there." Previously the radio message mentioned the kind of trouble that had developed so of course the ambulance chasers drove only to those places that held the promise of a damage suit. Now they will be compelled to drive to every scene of trouble and waste time on one-alarm fires, street brawls, wife beatings, liquor raids and similar non-profit-bearing scrimmages.



In the review of Campbell's "Textbook on Orthopedic Surgery" (W. B. Saunders Company), published in our November issue, the price of the book was given as \$3.50. This was a typographical error. The price is \$8.50.

A ruddy, jovial Santa Claus beams forth from the Christmas Health Seals of tuberculosis associations this year typifying the cheer and radiant good health which is the spirit of the work of the seals. The strength of the crusade against tuberculosis and toward general health is vested in the seals for through their sale the work is largely made possible.



When the first seal was sold in America in 1907 tuberculosis was causing the deaths of 178 persons in every 100,000. There were then only twenty organizations to fight the disease, a few sanatoria, no preventoria and only a limited educational program. The first national seal sale in this country was held in 1908 and realized \$35,000. Since that time the seals have appeared each year and serve as one of the sources of revenue for the campaign against tuberculosis. In 1928 the tuberculosis death rate was 79 in every 100,000 and there were 600 sanatoria providing 73,000 beds, over 7,000 public health nurses engaged in tuberculosis work, 1,066 permanent and 2,615 temporary clinics in the country. The fight is not yet won, for tuberculosis still kills more persons between 15 and 44 than does any other disease.

Buy Christmas seals and thus aid the advancement of the work.

The St. Louis Better Business Bureau includes in a late *Bulletin* a warning that many people will be annoyed between now and Christmas by receiving merchandise which they have not ordered and which is not a gift. Jewelry, greeting cards, neckties, handkerchiefs,

and other small articles of merchandise that can be readily shipped are mailed by the promoters of unordered merchandise schemes. An individual who receives an unordered package owes no particular duty to the sender. If postage is enclosed, he may return it. If he prefers, he may keep the package until the sender calls for it. In any event, he is under no obligation to pay for it unless he puts the article to use. Last February, the Affiliated Better Business Bureau endorsed a bill to be introduced in Congress, designed to prohibit the distribution of unordered merchandise through the mails. The shipping of unordered merchandise is a business nuisance and should be eliminated by making it unprofitable, the *Bulletin* says, and recommends that in no event should it be paid for.

St. Mary's Infirmary, 1536 Papin, St. Louis, one of the university hospitals of St. Louis University Medical School, will be converted into a private hospital for Negroes as soon as the new Firmin Desloge Hospital is completed, Father Alphonse Schwitalla, dean of the St. Louis University Medical School, has announced. St. Mary's Infirmary was established in 1877 as a general hospital for both white and Negro patients and has a capacity of 123 beds and an outpatient department. The infirmary will continue to be conducted by the Sisters of St. Mary as an open general hospital for Negroes. Dean Schwitalla has announced that some of the purposes the Sisters hope to attain in converting the institution to the exclusive use of Negroes are, to meet a pressing civic need, to promote interracial understanding on the basis of religious motivation, and to foster professional higher education among the Negroes. St. Louis University will retain a measure of control over the institution through the creation of an advisory staff composed of the directors of the various clinical departments. This staff will not only aid in the medical administration but will also effect cooperative arrangements with the members of the visiting and consulting staffs for the care of patients. The advisory staff will control the medical routine, afford advanced instruction to the visiting and consulting staffs and be responsible for the training of colored interns. A separate hospital board for administrative functions will be created. The Mound City Medical Forum, the medical society in St. Louis composed of Negro physicians, pledged their support to the new hospital.

Dr. Karl Landsteiner, New York, bacteriologist and pathologist, who has been a

member of the Rockefeller Institute since 1922, has been awarded the Nobel Prize for Medicine. The award was made by the Stockholm Faculty of Medicine, the money grant accompanying the award approximating \$48,000. The prize was awarded to Dr. Landsteiner for his discoveries and research in classifying different types of human blood. He is the author of many papers on medical subjects connected with bacteriology and pathology. Dr. Landsteiner was born in Vienna in 1868 and received his medical degree from the University of Vienna in 1891 and was professor of pathology there from 1910 to 1920. Dr. Landsteiner was the first to communicate the disease of infantile paralysis from man to monkeys thus opening the disease to experimental study. He is the discoverer of the group characteristics of red corpuscles. Other discoveries by Dr. Landsteiner relate to paroxysmal hemoglobinuria and to the specific properties of blood serum. Dr. Landsteiner is a member of many scientific bodies in the United States and in Europe and a Chevalier of the Legion of Honor. Dr. Alexis Carrel, New York City, is the only other American who has been awarded the prize. He received the Nobel Prize for Medicine in 1912.

Lieut.-Col. Monti L. Belot, M.D., Kansas City, was elected president of the medical section of the Kansas City Reserve Officers at a meeting held in Kansas City, November 12.

The following articles have been accepted for New and Nonofficial Remedies:

Lederle Laboratories, Inc.

Diphtheria Toxoid

Maltine Company

Maltine with Cod Liver Oil and Iron Iodide

The following articles have been exempted and included with the List of Exempted Medicinal Articles (New and Nonofficial Remedies, 1930, p. 477):

E. R. Squibb & Sons

Tablets Digitalis Leaves—Squibb 1 Cat Unit (approximately  $1\frac{1}{2}$  grains)

Tablets Digitalis—Squibb 1 Grain (10 minims U. S. P. tincture)

## OBITUARY

LURIN P. MACKLIN, M.D.

Dr. Lurin P. Macklin, St. Louis, a graduate of Washington University School of Medicine, 1909, died October 15, of heart disease, an aftermath of an illness last summer, aged 44.

Dr. Macklin was born in St. Louis. He received his preliminary education at the Missouri Military Academy and the University of

Missouri. Following graduation from medical school he interned at the City Hospital for one year. Dr. Macklin was a member of the staff of the department of hygiene of the St. Louis Board of Education. He was a member of the St. Louis Medical Society.

A large number of friends grieve his death and he leaves a widow, Mrs. Amelia Rackeby Macklin; his mother, Mrs. Lillian J. B. Macklin; and one sister, Mrs. Ouida Hauser, of Tulsa, Okla.

JOSEPH ANTHONY EBEL, M.D.

Dr. Joseph A. Ebel, St. Louis, a graduate of the St. Louis University School of Medicine, 1920, died suddenly, October 30, following an attack of nephritis, aged 34.

Dr. Ebel was born in St. Louis and received his preliminary education at St. Peter and Paul's High School, St. Louis. Following his graduation in medicine he interned at the St. Louis City and Missouri Pacific hospitals. He had been engaged in private practice ten years specializing in gynecology. He was a member of the faculty of St. Louis University School of Medicine being assistant instructor in gynecology and obstetrics. He was a member of the St. Louis Medical Society and a Fellow of the American Medical Association.

Surviving are two brothers, Rev. Leo M. Ebel and Fred L. Ebel, and a sister, Miss Anna M. Ebel. His mother was buried two weeks preceding Dr. Ebel's death.

EDWIN WILLIAM EBERLEIN, M.D.

Dr. Edwin W. Eberlein, St. Louis, a graduate of Washington University School of Medicine, 1899, died from a heart attack November 1, aged 54.

Dr. Eberlein had been in the practice of medicine in St. Louis since his graduation thirty-one years ago with the exception of time spent in France during the World War. Dr. Eberlein had opened new offices in the University Club Building the day preceding his death. He specialized in otology, laryngology, and rhinology. He was a member of the St. Louis Medical Society and a Fellow of the American Medical Association.

Besides many friends he leaves to mourn him his widow, his mother and one sister.

MCCORD G. ROBERTS, M.D.

Dr. McCord G. Roberts, Springfield, a graduate of the Missouri College of Medicine and Science, St. Louis, 1891, died August 27, of cerebral hemorrhage, aged 69.

Dr. Roberts was a native Missourian and received his preliminary education in the pub-



lic schools and at a Missouri college. He practiced in Lamar for six years, in Conway for fifteen years, then located in Marshfield, removing to Springfield in June, 1930. Dr. Roberts was always active in the medical societies in the counties where he resided. He was elected an Honor Member of the Webster County Medical Society in 1927. During his thirty-nine years of practice he acquired a large circle of friends who mourn his death.

#### THEODORE FRED ESTEL, M.D.

Dr. Theodore F. Estel, Altenburg, a graduate of Marion-Sims Beaumont Medical College (now St. Louis University School of Medicine), 1902, died August 19, 1930, aged 51. His health had been bad for several weeks.

Dr. Estel had practiced medicine in Altenburg, which was his birthplace, for twenty-seven years. His sterling qualities as a man and his sympathetic and unselfish interest in his patients and the welfare of his friends established him in the hearts of a wide circle of devoted friends. He was a member of the Perry County Medical Society of which he was vice president in 1925 and again in 1927. He had served the Missouri State Medical Association as Councilor for the Twenty-First District since 1923 and was delegate to the State Meeting in 1927 and alternate in 1929. He was local surgeon for the St. Louis-San Francisco Railroad.

#### HENRY J. VON GREMP, M.D.

Dr. Henry J. von Grempp, Dixon, a graduate of the Missouri Medical College (now Washington University School of Medicine), 1887, died August 5, 1930, when he was struck by a freight train at a grade crossing near the railroad station in Dixon. He was 67 years old.

Dr. Von Grempp was a member of the Pulaski County Medical Society and was a delegate to the State Meeting at Sedalia in 1927. He specialized in gynecology.

Dr. Von Grempp was widely known in his locality and highly regarded as a physician and was postmaster during the Wilson administration.

#### JOHN M. STONE, M.D.

Dr. John M. Stone, Laredo, a graduate of the College of Physicians and Surgeons, Keokuk, Iowa, 1878; died September 18, aged 81.

Dr. Stone received his preliminary education at the Kirksville Normal School. He was licensed in medicine in Missouri in 1884 and became a member of the Grundy County Medical Society in 1909. He was always interested

in professional activities and was an alternate delegate from Grundy County to the state medical meeting in St. Louis in 1926. He was a Fellow of the American Medical Association and a member of the Grand River Medical Society.

In his fifty-six years of medical practice he gained a large group of friends who mourn his death.

## SOCIETY PROCEEDINGS

### COUNTY SOCIETY HONOR ROLL FOR 1930

(UNDER THIS HEAD WE LIST SOCIETIES WHICH  
HAVE PAID DUES FOR ALL THEIR MEMBERS)

#### HONOR ROLL

Mercer County Medical Society, December 12, 1929.  
Madison County Medical Society, December 16, 1929.  
Benton County Medical Society, January 8, 1930.  
Pulaski County Medical Society, January 11, 1930.  
Webster County Medical Society, January 24, 1930.  
Chariton County Medical Society, January 27, 1930.  
Ralls County Medical Society, March 6, 1930.  
Camden County Medical Society, March 10, 1930.  
Dent County Medical Society, April 2, 1930.  
Schuyler County Medical Society, April 5, 1930.  
Platte County Medical Society, April 7, 1930.  
Christian County Medical Society, April 7, 1930.  
Macon County Medical Society, April 12, 1930.  
Miller County Medical Society, April 14, 1930.  
Phelps County Medical Society, April 25, 1930.  
Atchison County Medical Society, April 30, 1930.  
Lafayette County Medical Society, May 9, 1930.  
St. Louis County Medical Society, August 26, 1930.  
Adair County Medical Society, September 26, 1930.  
Marion County Medical Society, October 11, 1930.

#### BATES COUNTY MEDICAL SOCIETY

The regular meeting of the Bates County Medical Society was held in Butler, September 25, at 2 p. m. Members present were: Drs. E. W. Chastain, George H. Thiele and John S. Newlon, of Butler; C. W. Luter, Adrian; George A. Delamater, Rich Hill;

H. A. Rhodes, Foster; A. B. Freeman, Rockville; C. A. Lusk, Virginia. Visitors: Drs. R. M. Isenberger and Cecil G. Leitch, of Kansas City, Kansas; J. T. Hornback and J. M. Yater, of Nevada. A short business meeting was held.

Dr. John S. Newlon, Butler, moved that the secretary be instructed to write an article for publication in the county papers informing the public of our meetings, covering points of interest and mentioning members present and guest speakers present. The motion was seconded and carried. The members felt that this would legitimately advertise our profession and bring the activities of the Society before the public in an ethical manner.

The scientific program was opened by Dr. Cecil G. Leitch who spoke on "Infantile Paralysis and Its Treatment." Dr. Leitch, who is pathologist at St. Mary's Hospital and the University of Kansas Department of Pathology, is doing some interesting work on this disease, particularly the treatment by convalescent serum. His reports are good and prove this serum to be much safer and more specific than the animal sera. However, the matter of supply at present is rather small making it very difficult for general use.

Dr. R. M. Isenberger, of the University of Kansas School of Medicine, talked on "The Use of Drugs in Medicine." This was an interesting talk well presented by a teacher well fitted for the task. Dr. Isenberger stressed the need of development of research facilities in therapeutics as is done in research and study of disease. He said we have places for the application of our knowledge of physical diagnosis but no place where drugs can be studied scientifically on the patient to learn which drugs are valuable and which should be discarded. The Doctor's talk was one of the most practical we have heard in some time and certainly opened an avenue of thought for the practitioners of medicine.

The Society extended a vote of thanks to the visiting doctors.

Our next meeting will be held in Nevada in conjunction with the Vernon-Cedar County Medical Society and we are anticipating a good time.

C. W. LUTER, M.D., Secretary.

#### CALDWELL COUNTY MEDICAL SOCIETY

The Caldwell County Medical Society met in the Dowell Sanitarium, Braymer, October 30, with President G. S. Dowell in the chair. Those present were Drs. Tinsley Brown, Hamilton; H. H. Patterson, Braymer; E. A. Thompson, Breckenridge, and C. H. Wilbur, Polo. Visitors were Drs. Charles Greenberg and H. W. Carle, St. Joseph; D. A. Williams and Donald H. Dowell, Kansas City. The minutes of the meeting held in Polo, July 31, were read and approved. The visiting doctors were extended the privileges of the Society.

Dr. H. W. Carle read a paper on "Angina Pectoris," dealing thoroughly with the supposed cause and the treatment. An interesting discussion followed.

Dr. Charles Greenberg read a paper dealing with the management of diseased prostate gland. He gave a history of the operation by the punch method which consists of tunneling through the gland by electrocautery. He explained that this treatment relieves the obstruction but does not require a long hospitalization and is especially useful in giving relief in malignant obstruction although it gives relief in any case. Discussion followed.

Dr. D. A. Williams read a paper dealing with the cause and relief of peptic ulcer. The paper was well received and thoroughly discussed.

Dr. Donald H. Dowell talked on spasmodic asthma in contradistinction to that caused by so-called heart asthma.

The meeting was one of the most interesting we have had in a long time and those members not present missed much.

The meeting adjourned to meet in Hamilton in November.

TINSLEY BROWN, M.D., Secretary.

#### CLAY COUNTY MEDICAL SOCIETY

The October meeting of the Clay County Medical Society and the Woman's Auxiliary was held in the Snapp Hotel, Excelsior Springs, October 30. At 6 o'clock a dinner was served to seventeen members and their wives and the guests, Dr. and Mrs. George H. Hoxie, Kansas City.

Dr. Hoxie led the symposium on "The Early Diagnosis of Tuberculosis." He exhibited many skiagrams of the chest and sinuses of school children. The demonstration was intensely interesting and instructive. Dr. Hoxie has observed many pupils in schools for white, Mexican and Negro children. Of most particular interest was the subject of sinus infection, with or without subjective symptoms in the lungs. The possibilities of early discovery and treatment were brought out clearly by Dr. Hoxie. A notable case report was given of a patient who had all her teeth extracted for foci when the lung at the time was loaded with tubercle bacilli.

Dr. W. H. Goodson, Liberty, showed some very interesting films secured within his own practice.

Intensive study marked this wonderful meeting and the discussion, participated in by all present, brought out many valuable points.

A vote of thanks was given Dr. Hoxie for his extremely interesting presentation.

Our large membership has yet a delinquent list of five for 1930. It could be worse, of course, but we are never on the Honor Roll any more; just why is conjectural.

The meeting of the Woman's Auxiliary was conducted by Mrs. Hoxie who gave a report of the national meeting in Detroit.

J. J. GAINES, M.D., Secretary.

#### GREENE COUNTY MEDICAL SOCIETY

The regular meeting of the Greene County Medical Society was held in the Springfield Public Library, September 12. Dr. Otto C. Horst, Springfield, presided, in the absence of the president. Thirty-seven members were present. The guests included Drs. C. E. Burford and Daniel L. Sexton, of St. Louis; J. P. Stokes, Mt. Vernon; R. E. Harrell, Urbana. Drs. Burford and Sexton were sent to us by the Postgraduate Committee of the State Association. In order to give the out-of-town speakers as much time as possible all business was dispensed with.

Dr. C. E. Burford spoke on "Surgical Conditions of the Kidney." Lantern slides illustrated the varied cases of displaced kidneys, kinks and strictures of the ureter, ruptured kidney, renal and ureter calculi, and tumors of the kidney. He reported very satisfactory operative results in cases of floating kidney whereby the upper pole of the kidney is fixed to the muscles between the eleventh and twelfth ribs.

Dr. Daniel L. Sexton read a paper on "Diagnosis and Treatment of Endocrine Disorders." Dr. Sexton illustrated his subject with lantern slides of various endocrine disturbances before and after treatment.



The program was enjoyed by every one present. The meeting adjourned at 11 o'clock.

#### Meeting of September 26

The Society met September 26 in the club rooms of the Springfield Public Library, with nineteen members present. The minutes of the two previous meetings were read and approved.

The scientific program consisted of a paper read by Dr. W. A. Delzell, Springfield, entitled "Tumors of the Breast," illustrated with lantern slides. Dr. Delzell's paper included a classification of tumors of the breast, their diagnosis, differential diagnosis and treatment.

The subject was discussed by Drs. Otto C. Horst, Wallis Smith, Paul F. Cole and M. C. Stone.

The meeting adjourned at 10 o'clock.

J. NEWTON WAKEMAN, M.D., Secretary.

#### JASPER COUNTY MEDICAL SOCIETY

The Jasper County Medical Society held its regular meeting at Joplin, October 28, with the secretary, Dr. O. T. Blanke, Joplin, in the chair. In the absence of a quorum no business was transacted.

Mr. H. B. Bardwell, director of safety for the Empire District Electric Company, showed two reels of moving pictures on "The Preparation of Antivenin for the Treatment of Poisonous Snake Bites." The pictures were very interesting and instructive.

#### Meeting of November 4

The meeting was called to order at 8 p. m. by President Charles T. Reid, Joplin. There were nine members and nine visitors present.

The scientific program was furnished by Dr. Jesse D. Cook, Kansas City, through the courtesy of the Postgraduate Committee of the State Association. Dr. Cook spoke on "The Anatomy of the Nasal Sinuses and Upper Respiratory Tract" with special reference to the possible routes of transference of infection in the production of cavernous sinus thrombosis and the possible accidents to the blood supply in tonsillectomies. The subject was presented in an orderly, instructive manner and was illustrated with charts, roentgen ray pictures, lantern slides, dried skulls and dissections.

A lively discussion followed Dr. Cooke's talk and those present felt they had spent an evening well worth while.

O. T. BLANKE, M.D., Secretary.

#### MARION COUNTY MEDICAL SOCIETY

The Marion County Medical Society met Friday evening, October 3, at the Mark Twain Hotel, Hannibal. The scientific meeting was preceded by a banquet at 7:30 p. m. served to twenty-six physicians from Hannibal and surrounding territory. Through the courtesy of the Postgraduate Committee of the State Association we had as our guests Drs. H. G. Lund and Theo. H. Hanser, of St. Louis.

Dr. Lund gave a comprehensive summary of "Strictures of the Ureter," illustrated with roentgen ray pictures. He went into detail regarding the variety of etiological factors, took up the varied and innumerable symptoms caused by these conditions and emphasized the point that the prominent symptoms were often misleading. It was his opinion that a large number of such cases go entirely unrecognized by physicians for years and result in invalidism. His remarks on the medical and surgical treatment of these conditions were very interesting and extremely valuable.

Dr. Hanser spoke on "Common Gynecological

Disorders." He particularly stressed the careful attention to detail in treating such conditions as vaginitis, cervicitis, and similar conditions. He illustrated his subject with lantern slides showing the actual method of treatment for many of the conditions.

The Society is very grateful to Drs. Lund and Hanser for their time and for the interesting and instructive talks they gave us.

H. B. GOODRICH, M.D., Secretary.

#### NODAWAY COUNTY MEDICAL SOCIETY

The regular monthly meeting of the Nodaway County Medical Society for October, was held on Friday, the 10th, in the lecture room of the St. Francis Hospital, Maryville. The meeting was called to order by the vice president, Dr. C. P. Fryer of Maryville, at 7:30 p. m. The following members answered roll call: Drs. K. C. Cummins, L. E. Dean, C. P. Fryer, C. V. Martin, and Jack Rowlett, Maryville; C. J. Garding, Conception Junction; and Charles D. Humbert, Barnard. Drs. H. L. Stinson and W. B. Owen, dentists, of Maryville, and Drs. Ralph W. Holbrook and E. Kauffman, of Kansas City, and five Sisters from the hospital staff, were also present as guests of the Society.

The secretary reported the removal of one of our valued members, Dr. John A. Phipps, Elmo, who has left the county and gone into the practice of medicine at Scotts Bluffs, Nebraska.

Dr. Ralph W. Holbrook, Kansas City, who had come as the speaker for the evening by courtesy of the Postgraduate Committee of the Missouri State Medical Association, was introduced by the vice president. He presented the regrets of Dr. E. J. Goodwin, our venerated Secretary and Editor, that he could not be present at the meeting as planned.

Dr. Holbrook read an exceptionally able and practical paper on "Pneumonia and Its Treatment." His lecture was illustrated with lantern slides, and gave especial stress to diagnosis and treatment. His remarks were intended for the physician who actually sees pneumonia at the bedside and was gladly accepted as such. Dr. Holbrook's brilliant outline was discussed by Drs. K. C. Cummins and C. J. Garding.

The meeting adjourned at 9:00 p. m.

CHARLES D. HUMBERT, M.D., Secretary.

#### RANDOLPH-MONROE COUNTY MEDICAL SOCIETY

The Randolph-Monroe County Medical Society met in regular session Tuesday, October 14, at Moberly. The following members were present: P. C. Davis, C. H. Dixon, R. M. Dutton, L. E. Huber, O. K. Megee, L. O. Nickell, M. R. Noland, S. T. Ragan and R. D. Streeter, of Moberly; G. W. Hawkins and Dr. Wright, of Salisbury; Dr. Dameron, of Keytesville.

Dr. T. S. Fleming, Moberly, read an interesting paper on "Myocardial Degeneration as a Result of Coronary Sclerosis."

#### Meeting of November 11

The meeting of November 11, held at Moberly, was called to order by Dr. C. H. Dixon, Moberly, in the absence of the president, Dr. L. O. Nickell, Moberly. Those in attendance were Drs. C. H. Dixon, S. T. Ragan, L. E. Huber, and P. C. Davis, of Moberly; J. F. Flynt, Paris; R. A. Woods, Clark; D. A. Barnhart, Huntsville. The minutes of the last meeting were read and approved.

The application of Dr. Florian L. Harms was re-

ported on favorably by the board of censors and Dr. Harms was unanimously elected a member.

The committee composed of Drs. D. A. Barnhart, of Huntsville; F. L. McCormick and R. D. Streeter, of Moberly, was not prepared to report on the banquet to be held in November.

It was moved and seconded that the banquet be held November 25 at the Merchants Hotel, Moberly. Dr. T. S. Fleming, Moberly, was added to the original committee.

Dr. L. E. Huber, Moberly, read an interesting paper on "Headache, Its Clinical Importance in Manifestation of Disease."

THOS. S. FLEMING, M.D., Secretary.

### SOUTHEAST MISSOURI MEDICAL ASSOCIATION

The Southeast Missouri Medical Association held its fifty-fourth annual meeting in Poplar Bluff, Tuesday and Wednesday, October 7 and 8, 1930. The invocation was given by the Rev. R. L. Forestal, Poplar Bluff.

On Tuesday evening a 6 o'clock dinner was served at the Ducker Hotel. Dr. A. R. Rowe, Poplar Bluff, gave the address of welcome and Dr. Paul Baldwin, Kennett, responded. Dr. M. H. Shelby, Cape Girardeau, president, delivered the annual address of the president. The annual report on necrology was read with eulogies to deceased members by Dr. G. W. Vinyard, Jackson.

The scientific sessions consisted of papers and discussions on the following subjects:

"Treatise on Diabetes Mellitus, with Case Report," Dr. R. C. Kitchell, Bismarck.

"Granuloma Inguinale," Dr. B. J. McCaully, Poplar Bluff.

"Acute Rheumatism, with Case Report," Dr. A. F. Bugg, Ellington.

"Ear, Nose and Throat in Relation to General Medicine," Dr. H. W. Lyman, St. Louis.

"The Handling of a Few of the More Common Injuries," Dr. Flint Bondurant, Cairo, Illinois.

"Hypertension," Dr. Chas. E. Fallet, DeSoto.

"Epidemic Cerebrospinal Meningitis," Dr. U. A. V. Presnell, Kennett.

"Report of Surgical Cases Under Sodium Amytal Anesthesia," Dr. O. L. Seabough, Cape Girardeau.

"William Harvey on the Circulation of the Blood," Dr. M. L. Cone, Campbell.

"Ectopic Pregnancy, Causes and Treatment," Dr. D. H. Hope, Cape Girardeau.

"Fundamentals in Diagnosis of the Acute Abdomen," Dr. John D. Hayward, St. Louis.

"Diagnosis of Sinusitis," Dr. W. G. Patton, St. Louis.

"Syphilis," Dr. Norman Tobias, St. Louis.

"Fractures Involving Joints; with lantern slides," Dr. J. Edgar Stewart, St. Louis.

"Late Syphilis Involving the Genito-Urinary Organs," Dr. Neil S. Moore, St. Louis.

"Nephritis, Especially Related to the Lipoid Type," Dr. A. H. Hamel, St. Louis.

"A Case of Encephalitis Lethargica Following Smallpox Vaccination and Coincident with an Attack of Chickenpox," Dr. Carl A. W. Zimmermann, Cape Girardeau, and Dr. J. H. Cochran, Gideon.

Discussion of the various papers was a very interesting part of the program.

Campbell was selected as the meeting place for 1931.

Officers elected for the ensuing year were: President, Dr. M. H. Shelby, Cape Girardeau, reelected;

vice president, Dr. J. Lee Harwell, Poplar Bluff; recording secretary, Dr. W. S. Love, Charleston, reelected; corresponding secretary, Dr. E. J. Nienstedt, Blodgett, reelected.

E. J. NIENSTEDT, M.D.,  
Corresponding Secretary.

### ST. LOUIS MEDICAL SOCIETY

#### Meeting of the Council, June 11

The meeting was called to order at 8:25 p. m. by the president, Dr. Vilray P. Blair.

A letter from Dr. Fred Bailey, with enclosure from the executive secretary of the American Red Cross recommending the establishment of first aid stations along the highways, was read.

On motion the president was authorized to appoint two members of our Society to serve with one member of the St. Louis County Medical Society to formulate plans regarding the matter and to report to the Council at a later date, the Red Cross to be notified that a tentative approval of the plan had been given.

The following were elected to membership: Active, Thomas B. Pote, Dome of Federal Building. Junior, A. Victor Reese, Missouri Baptist Hospital. Library, John H. Armstrong, 321 N. Kirkwood Road; Mary A. McLoon, 6635 Delmar Boulevard.

The executive secretary, Mr. E. H. Bartelsmeyer, reported verbally from his written report filed with the secretary.

On motion of Dr. C. H. Shutt, seconded by Dr. Lee Dorsett, the report was received and authorization given to either the president or secretary to appoint a committee to act in regard to the Kenrick Square Apartment condemnation procedure.

The executive secretary was authorized to attend the meeting of the American Medical Association at Detroit at no expense to the Society.

A report from Dr. M. B. Clopton concerning delinquent building fund subscribers was read and on motion of Dr. Lee Dorsett, seconded by Dr. John Hardesty, the recommendations of the committee were approved.

Attention was called to the fact that the Southwestern Bell Telephone Company had discontinued all advertising in the classified list of physicians in their new directory.

An application for corresponding membership from Dr. John F. Rutledge, Crystal City, was presented and on motion of Dr. C. H. Shutt, seconded by Dr. John Hardesty, he was elected a corresponding member.

Councilors present: Drs. V. P. Blair, Lee Dorsett, John Hardesty, Roland Kieffer, W. C. G. Kirchner, C. H. Shutt and H. S. Langsdorf. Councilors absent: Drs. John Green, F. J. V. Krebs, Harry Moore, C. H. Neilson, C. F. Pfingsten, Hillel Unterberg, and C. A. Vosburgh.

Visitors present: Drs. Norvelle Wallace Sharpe, F. C. E. Kuhlman and Mr. Elmer H. Bartelsmeyer.

#### Meeting of the General Society, September 16

The meeting was called to order at 8:35 p. m. by the second vice president, Dr. Charles F. Sherwin.

Dr. Richard L. Sutton, Kansas City, was introduced by Dr. Joseph Grindon and gave an interesting lecture on "The Long Trek—A Story of an African-Asiatic Expedition 1929-30," illustrated with lantern slides.

Attendance 647.

MATTHEW L. CUSTER, M.D., Secretary pro tem.



**Meeting of the General Society, September 23**

The meeting was called to order at 8:35 p. m. by the second vice president, Dr. Charles F. Sherwin. Dr. Walter Hewitt moved that the regular order of business be postponed in order to proceed with the program. Motion was seconded and carried.

The following scientific program was given:  
"Tuberculosis in Retrospect," Dr. Stuart Pritchard, Vice President, National Tuberculosis Association, Battle Creek, Michigan.

"Ethical Values in Medical Social Hygiene," Rev. Alphonse M. Schwitalla, S. J., President, Missouri Social Hygiene Association.

"Personality in Its Relation to the Health of the Individual," with lantern slide demonstration, Dr. William L. Nelson, President, Missouri Society for Mental Hygiene.

Attendance 251.

HERBERT S. LANGSDORF, M.D., Secretary.

**Meeting of October 21**

The meeting was called to order at 8:40 p. m. by the president, Dr. Vilray P. Blair.

The following program was given:  
"Resume of Activities of Executive Secretary," E. H. Bartelsmeyer.

Remarks by Dr. Blair.

"The Need of a Coordinating Council for All Health Agencies," Dr. David M. Cowgill, Secretary, Health Department, Community Council.

"Experiences With Health Agencies Under Coordinating Council," Robert Kelso, Director, Community Council.

Remarks by Dr. Blair.

On motion of Dr. A. H. Hamel, seconded and carried, a rising vote of thanks was extended the visiting speakers.

Attendance, 74.

HERBERT S. LANGSDORF, M.D., Secretary.

**WOMAN'S AUXILIARY****OFFICERS 1930-31**

President, Mrs. A. W. McAlester, Kansas City.  
President-Elect, Mrs. U. J. Busiek, Springfield.  
1st Vice President, Mrs. C. M. Sneed, Columbia.  
2nd Vice President, Mrs. H. B. Goodrich, Hannibal.  
3rd Vice President, Mrs. R. S. Kieffer, St. Louis.  
4th Vice President, Mrs. W. L. Kenney, St. Joseph.  
Recording Secretary, Mrs. David S. Long, Harrisonville.  
Treasurer, Mrs. R. C. Haynes, Marshall.  
Auditor, Mrs. C. T. Ryland, Lexington.

**ORGANIZED COUNTIES AND PRESIDENTS OF WOMAN'S AUXILIARIES**

COUNTY	PRESIDENT AND ADDRESS
Audrain.....	Mrs. William Ford, Mexico
Bates.....	Mrs. C. W. Luter, Adrian
Boone.....	Mrs. F. E. Dexheimer, Columbia
Buchanan.....	Mrs. H. W. Carle, St. Joseph
Cass.....	Mrs. R. M. Miller, Belton
Cape Girardeau.....	Mrs. G. W. Walker, Cape Girardeau
Clay.....	Mrs. C. H. Suddarth, Excelsior Springs
Cole.....	Mrs. R. P. Dorris, Jefferson City
Gentry.....	Mrs. Frank H. Rose, Albany
Greene.....	Mrs. S. F. Freeman, Springfield
Jackson.....	Mrs. R. L. Sutton, Kansas City
Jasper.....	Mrs. C. C. Cummings, Joplin
Johnson.....	Mrs. H. F. Parker, Warrensburg
Lafayette.....	Mrs. W. E. Koppenbrink, Higginsville
Linn.....	Mrs. Ola Putman, Marcelline
Marion.....	Mrs. H. O. Daniel, Hannibal
Platte.....	Mrs. J. H. Winter, Parkville
Randolph-Monroe.....	Mrs. O. O. Ash, Moberly
St. Louis City.....	Mrs. G. N. Seidlitz, St. Louis
Saline.....	Mrs. L. S. James, Blackburn
Scotland.....	Mrs. P. M. Baker, Memphis
Vernon-Cedar.....	Mrs. T. B. Todd, Nevada

**CLAY COUNTY AUXILIARY**

The Woman's Auxiliary to the Clay County Medical Society met with the Medical Society at the Snapp Hotel, Excelsior Springs, Thursday evening, October 30. A 6 o'clock dinner was served to seventeen members and the guest, Mrs. George H. Hoxie, Kansas City.

Mrs. Hoxie gave an interesting report on the national meeting in Detroit.

**WOMAN'S AUXILIARY TO THE MISSOURI STATE MEDICAL ASSOCIATION****Sixth Annual Meeting, Hannibal,**

May 13-14, 1930

The Sixth Annual Meeting of the Woman's Auxiliary to the Missouri State Medical Association was called to order in the Garth Memorial Library Building, Hannibal, May 14, 1930. The general meeting was preceded by an Executive Board meeting on May 13 and a dinner for delegates and guests in the evening. Approximately fifty attended the dinner where informal talks were made by state officers and representatives of county auxiliaries, and a musical program was given.

The Executive Board met May 13 at 10:30 a. m. The meeting was called to order by the President, Mrs. M. P. Ravenel, Columbia, the following members responding to roll-call: Mrs. M. P. Ravenel, Columbia; Mrs. A. W. McAlester, Kansas City; Mrs. W. M. Bickford, Marshall; Mrs. C. M. Sneed, Columbia; Mrs. R. C. Haynes, Marshall; Mrs. U. J. Busiek, Springfield; Mrs. David S. Long, Harrisonville; Mrs. S. P. Howard, Jefferson City; and Mrs. W. T. Martin, Albany. There were also present several members of the Marion County Auxiliary and other guests.

The minutes of the Executive Board meeting held at Springfield and of the mid-year meeting held at the home of Mrs. W. M. Bickford, Marshall, February 18, 1930, were read and approved.

The President, Mrs. M. P. Ravenel, spoke briefly of her ideals and future hopes for the medical scholarship, pointing out that it not only is of great benefit to the student receiving it, but is of inestimable value to the auxiliaries, knitting them together in a bond as only a common humanitarian cause can do.

Mrs. S. P. Howard, Chairman of Education, gave an excellent report of the programs sent out by her department and the Auxiliary of the American Medical Association.

Mrs. U. J. Busiek, Chairman of Organization, gave her report.

Mrs. W. M. Bickford expressed regret that past records of the Auxiliary were lost and moved that the president appoint a committee to locate the records of past presidents and treasurers and pass them on to the new President. The motion was seconded and carried.

The treasurer, Mrs. R. C. Haynes, made her report showing a membership of 345 and a balance in the treasury of \$211.92.

The reports of the Chairman of Hygeia, Mrs. W. T. Martin, and the Chairman of Revision, Mrs. M. P. Overholser, were read. A discussion relating to organization and the scholarship fund followed.

A motion made at the previous meeting was changed to read "... the incoming President shall have full power to appoint the Committee on Award from the scholarship fund for the medical students at Missouri University."

## MINUTES OF THE GENERAL MEETING Garth Memorial Library, Wednesday, May 14, 1930—10:00 a. m.

The meeting was called to order by the President, Mrs. M. P. Ravenel, who opened the meeting with prayer.

The Address of Welcome was delivered by Mrs. H. O. Daniel, Hannibal, president of the Marion County Auxiliary. Mrs. Ravenel responded.

The following committees were appointed by the President:

Committee on Credentials: Mrs. H. B. Norton, Hannibal; Mrs. R. C. Haynes, Marshall; Mrs. W. C. O'Neal, Palmyra.

Committee on Registration: Mrs. W. H. Hays, Hannibal; Mrs. E. M. Lucke, Hannibal.

Committee on Resolutions: Mrs. J. De Voine Guyot, Higginsville; Mrs. H. M. Gilkey, Kansas City; Mrs. C. B. Summers, Kansas City.

## REPORT OF ORGANIZATION COMMITTEE

Mrs. U. J. Busiek, Chairman of Organization, read the following report:

At the beginning of the year, 1929-1930, the chairman assigned to each member of the committee three adjoining unorganized counties to organize if possible.

After faithful correspondence three counties were found which are ready to be organized, namely: Callaway County at Fulton; St. Charles County at St. Charles; and Howell-Oregon-Texas Counties.

Although unable actually to organize specific counties, the Organization Committee feels it has done its best under the circumstances.

MRS. U. J. BUSIEK,  
Chairman.

The report was adopted.

Mrs. M. P. Ravenel, Columbia, read the following report:

## REPORT OF THE PRESIDENT

I always felt sure that it could be done, therefore I am not surprised that it has been done. "What has been done?" you will ask. The raising of the Scholarship Fund of \$500 which the Auxiliary founded at the Annual Meeting in 1929. How was it done? By the splendid cooperation of the majority of the county auxiliaries and the generous over-subscription of several of them. So in April Mrs. Haynes sent our student, Mr. Edwin C. Schmidtke, the sum of \$250 which completed the whole amount of \$500 for the year. The Committee of Award in the School of Medicine of the University of Missouri, composed of Drs. M. P. Ravenel, M. P. Neal, and D. A. Robnett, chose Mr. Edwin C. Schmidtke, Mt. Vernon, Missouri, as the student best filling the conditions.

Mr. Schmidtke entered the third-year class of the medical school at Washington University and has in his letters one of which was published in the State Medical Journal, shown his great appreciation of the scholarship. I may be too optimistic when I say that I think the Auxiliary could easily establish a second scholarship. The scholarship is of great value to the Auxiliary, for it provides an interest and an object to work for without which no organization can prosper; therefore, I trust that the enthusiasm manifested during the last year will continue and increase.

The Envelope Lessons, under the competent direction of Mrs. S. P. Howard, Chairman of Education, have met with great success. To the Missouri State Board of Health, to Dr. Irl B. Krause and Miss Pearl McIvor, we owe a debt of gratitude for it was through the agency of the State Board of Health that these lessons were so carefully compiled and typewritten. I would suggest to the county auxiliaries that a real study be made of these lessons next year, for there is much valuable material in them. Together with the three lessons sent out by the Program Committee of the Woman's Auxiliary to the American Medical Association, they form a fine comparative study and should be so used.

On May 31, I went with Mrs. C. M. Sneed to Sedalia where Mrs. W. M. Bickford, Chairman of the Quota Committee, had arranged for a meeting and luncheon at the Country Club. The successful results attending the raising of the Scholarship Fund is due to the quota committee. On December 27, Mrs. Howard, Chairman of Education, Miss McIvor, and Dr. Krause met at my home to go over the lessons. At Dr. Krause's request, Mrs. G. H. Hoxie, Dr. H. E. Pearse, and Dr. M. P. Ravenel were invited to be present. Neither Mrs. Hoxie nor Dr. Pearse could accept the invitation.

On February 18, I went with Mrs. Sneed to Marshall to attend a meeting of the Executive Committee which I had

called and which Mrs. Bickford had invited me to hold at her house. After a delicious luncheon the program for the annual meeting was discussed and \$10 was voted to be sent to Mrs. James Blake, chairman of the finance committee of the National Auxiliary, as she had requested.

On April 16, I went with Mrs. Sneed to Hannibal. There we were met by Mrs. H. O. Daniel, president of Marion County Auxiliary, and several officers of the newly organized auxiliary.

I have sent circular letters to presidents of county auxiliaries and to members at large and have answered many letters from chairmen of committees of the National Auxiliary. At the request of Mrs. M. P. Overholser, Chairman of Public Relations, I had a questionnaire sent with a letter to the presidents of county auxiliaries. Before the fifteenth of the month I have sent to Dr. E. J. Goodwin, editor, whatever material we had for publication in The Journal of the State Medical Association.

With the efficient aid of Mrs. C. M. Sneed, Corresponding Secretary, a correct list of members has been partially prepared, and the filing cabinet is ready to be turned over to the new officers. Had the list of members from all county presidents been sent in the card index would be complete. We consider it most important that this be completed and to this end I ask the cooperation of all county presidents.

I regret to report that the Auxiliary to the Nodaway County Medical Society and the Auxiliary to the Butler County Medical Society have both disbanded and I fear that the Auxiliary to the St. Louis County Medical Society has met with the same fate. At the present time, therefore, twenty-four organized county auxiliaries comprise the list.

To the officers and chairmen of committees who have been such a great help to me in the last year, and with whom it has been such a great pleasure to be associated, I must give my heartfelt thanks.

The treasurer's duties have been unusually heavy. Each month Mrs. Haynes has sent me a report of the general account and of the Scholarship Fund, and for each subscription she has received for the Fund she has written a letter.

To the advisory committee, represented by Mrs. Bickford, I owe much for advice and hospitality.

May I not ask that all the generous loyalty given me be continued in good measure to my successor, Mrs. Andrew W. McAlester?

Mrs. H. L. Banks moved the adoption of the report. The motion was seconded and carried.

## HYGEIA REPORT

Mrs. W. T. Martin, Albany, Chairman of Hygeia, read the following report:

Two hundred and thirty letters were written. A letter with splendid recommendations of Hygeia was sent to all the county superintendents of our state, urging them to put Hygeia in every school in their respective counties. The same letter was sent to the rural supervisors of schools, and the three field nurses of the tuberculosis society asking cooperation with county superintendents of schools.

The Hygeia chairman of each county auxiliary and many federated clubs of the state received a letter asking their support of Hygeia. One hundred and forty-two yearly subscriptions have been sent in by your chairmen.

The State Tuberculosis Society is worthy of praise for their hearty and efficient cooperation in the circulation of Hygeia.

We acknowledge the efficient services of Miss Martha E. Sander, field nurse of the Tuberculosis Association who took charge of the Hygeia booth in St. Louis for the State Parent-Teachers' Association meeting.

I know of no better way to increase the circulation of Hygeia than to follow the plan given above, and by personal appeal to increase the circulation among the doctors and urge them to recommend Hygeia to their patients as the best health magazine.

Mrs. Gillham moved the adoption of the report. The motion was seconded and carried.

The following report of the Chairman of the Committee on Revision of Constitution and By-Laws, Mrs. M. P. Overholser, was read by the secretary:

## REPORT OF COMMITTEE ON REVISION OF CONSTITUTION AND BY-LAWS

Since the adoption of the revised Constitution and By-Laws at the annual meeting in Springfield, 1929, there have been no amendments suggested.

Following counsel with the president, and with her advice and consent, 250 copies of the new constitution were printed at an expense of \$7.50. This number was deemed adequate to meet the need of each county auxiliary for the next few years, and to supply each member of the Executive Board with a copy and meet such requests as come from other state auxiliaries or individuals.

MRS. M. P. OVERHOLSER,  
Chairman.



The secretary moved the adoption of the report. Seconded and carried.

The report of the Chairman of Crippled Children was read by the secretary, Mrs. Ida H. Hoxie.

### REPORT OF THE CHAIRMAN OF CRIPPLED CHILDREN

The Secretary of the Society for Crippled Children reports help and support from the state departments of health and education, from the St. Louis and Kansas City chapters, as well as smaller chapters, from the Shrine all over the state, and from commercial clubs.

Experience has shown that members of county auxiliaries cannot always take the time necessary to prepare papers to be read at their meetings. But they are eager for papers prepared and ready to read at their meetings if they are interestingly written. I should like to recommend, therefore, that if the Missouri Auxiliary decides to continue the study envelopes begun by your President and the Chairman of Education this year, a study envelope be prepared on "The Needs of the Crippled Children and How Their Needs May Be Met," and that the contents be so prepared that county auxiliaries may not only read them at their own meetings but may have them read at the meetings of other woman's clubs in the county.

MRS. IDA H. HOXIE,  
Chairman.

The Secretary moved adoption of the report. Motion seconded and carried.

The report of the Scholarship Fund Committee was read by the chairman, Mrs. W. M. Bickford, as follows:

### REPORT ON SCHOLARSHIP FUND

The quota committee for the Scholarship Fund met May 31, 1929, at Sedalia. Those present were Mrs. M. P. Ravenel, Mrs. C. M. Snead, Mrs. A. W. McAlester, Mrs. R. C. Haynes and Mrs. Harry Parker.

Five hundred dollars was the amount to be raised for the medical student for one year. According to the membership last year this would require 80 cents per capita. This amount was multiplied by the average membership in the last three years in each county, thereby giving each county their quota, as follows:

Date and County	Quota	Amount Paid
Oct. 6, 1929—Audrain.....	\$ 8.80	\$ 10.00
June 17, 1929—Boone.....	16.00	25.00
Oct. 6, 1929—Boone.....	gift	17.00
Jan. 17, 1930—Boone.....	gift	20.00
Jan. 17, 1930—Buchanan.....	35.29	35.20
July 18, 1929—Cass.....	11.20	11.20
April 14, 1930—Cape Girardeau....	16.80	15.20
March 14, 1930—Clay.....	11.20	11.20
July 12, 1929—Cole.....	12.80	7.20
County.....Mrs. Martin		1.00
Oct. 6, 1929—Greene.....	30.40	30.80
March 29, 1929—Jackson.....	96.80	97.60
June 2, 1929—Johnson.....	6.40	50.00
Oct. 21, 1929—Lafayette.....	12.00	12.00
July 24, 1929—Linn.....	6.40	6.40
April 14, 1930—Randolph-Monroe....	11.20	10.40
June 17, 1929—Saline.....	16.00	25.00
Feb., 1930—St. Louis City.....	195.20	120.50
June 15, 1929—St. Louis County....	16.00	9.50
Feb. 20, 1930—Vernon-Cedar.....		1.60

Total.....\$516.80

MRS. W. M. BICKFORD,  
Chairman.

Mrs. Bickford moved adoption of the report. Motion seconded and carried.

The minutes of the Executive Board meeting of May 13, 1930, were read by the secretary.

Mrs. W. M. Bickford moved the reading of the minutes of the Fifth Annual Meeting be dispensed with inasmuch as the important parts of the minutes were published in the State Medical Journal. Motion seconded and carried.

Mrs. A. W. McAlester, President-Elect, extended a cordial invitation to the members to come to Kansas City in October to attend the annual Clinical Conference.

The report of the recording secretary was read as follows:

### REPORT OF THE RECORDING SECRETARY

The Secretary wrote letters of notification to newly elected officers, prepared detailed minutes of three Board meetings and minutes of the Fourth Annual Meeting and sent copies to the retiring president, in-coming president and to Dr. E. J. Goodwin for publication in THE JOURNAL.

On motion, seconded and carried, the report was adopted.

The following report was read by the treasurer, Mrs. R. C. Haynes:

### REPORT OF TREASURER

Receipts ..... \$411.98  
Expenditures ..... 219.03  
Balance, May 14, 1930..... 192.95

MRS. R. C. HAYNES,  
Treasurer.

On motion, seconded and carried, the report of the treasurer was adopted.

Mrs. Harry M. Gilkey, auditor pro tem, reported the treasurer's books correct and well kept.

Mrs. U. J. Busiek moved that the auditor's report be accepted. Seconded by Mrs. Daniel and carried.

Mrs. S. P. Howard, Chairman of Education, reported as follows:

### REPORT ON EDUCATION

We have given information concerning the educational work of the auxiliary and have endeavored to foster the dissemination of correct knowledge on health questions. On October 27, 1929, your chairman gave a short talk on the activities of the auxiliary at the meeting of the Missouri Tuberculosis Association held in Jefferson City.

On October 19, 1929, letters were sent to each county president and members at large requesting familiarization with health department activities in their counties and willingness to accept offices and committee appointments in such organizations as parent-teachers' associations and federated clubs in order to promote health education programs.

At the suggestion of our president, Mrs. M. P. Ravenel, and with her help and that of Dr. Ravenel and the members of the State Board of Health, six lesson programs were prepared on the following topics: Government health agencies; state health legislation; organization and services of State Board of Health; affiliated health agencies, national and state; county health organizations; present and future health needs.

After the lessons were approved by our advisory committee, Dr. James Stewart, Jefferson City, Secretary, State Board of Health, very kindly mimeographed the lessons furnishing paper and envelopes, the Auxiliary furnishing the postage for mailing. The lessons were sent to each county auxiliary with the instruction that they be used as suggestive programs for Auxiliary meetings. The chairman has received some verbal comment on the use of these lessons, and the committee hopes many of the counties have used the lessons to advantage and will use them for health education programs in other organizations. The committee desires to express to Dr. and Mrs. Ravenel and the members of the State Board of Health who made these lessons possible, our appreciation and thanks for their assistance.

The chairman was in correspondence with Mrs. DePew, chairman of the national program committee, and submitted the names of the presidents of county auxiliaries of Missouri. To these presidents were sent envelope lessons prepared by the program committee of the Auxiliary to the American Medical Association. We realize that most auxiliaries could not use all this material during the last six months, but the committee hopes that the lessons can be of future use to the auxiliaries and to organizations who request suggestions for health programs.

MRS. STANLEY P. HOWARD,  
Chairman.

A motion to accept the report was seconded and carried.

Mrs. H. O. Daniel, Chairman of the Credential Committee, gave the following report:

### REPORT OF CREDENTIAL COMMITTEE

Officers present ..... 10  
County Presidents ..... 4  
Delegates ..... 11  
Guests ..... 44

Total ..... 69  
Voting Delegates ..... 25

Mrs. H. L. Banks moved the adoption of the report. Motion seconded and carried.

Mrs. W. M. Bickford, Chairman of the Nominating Committee, reported as follows:

# REPORT OF NOMINATING COMMITTEE

The Nominating Committee begs to submit the following officers for the coming year:

## Officers

President-Elect, Mrs. U. J. Busiek, Springfield.  
First Vice President, Mrs. C. M. Sneed, Columbia.  
Second Vice President, Mrs. H. B. Goodrich, Hannibal.  
Third Vice President, Mrs. R. S. Kieffer, St. Louis.  
Fourth Vice President, Mrs. W. L. Kenney, St. Joseph.  
Recording Secretary, Mrs. David S. Long, Harrisonville.  
Treasurer, Mrs. R. C. Haynes, Marshall.  
Auditor, Mrs. C. T. Ryland, Lexington.

## Directors for Two Years

Mrs. C. B. Summers, Kansas City.  
Mrs. J. De Voine Guyot, Higginsville.  
Mrs. P. L. Patrick, Marceline.  
Mrs. D. A. Barnhart, Huntsville.  
Mrs. H. C. Brashear, Mexico.

## Directors for One Year

Mrs. T. S. Fleming, Moberly.  
Mrs. S. F. Freeman, Springfield.  
Mrs. Robert McE. Schaffner, Kansas City.  
Mrs. Hudson Talbott, St. Louis.  
Mrs. J. J. Gaines, Excelsior Springs.  
Mrs. W. M. Bickford,  
Chairman.

Mrs. Bickford moved that the nomination ballot be made the elective ballot and the secretary be instructed to cast the vote for the entire ticket. The motion was seconded and carried.

The report of the Committee on Resolutions was read by Mrs. J. De Voine Guyot:

# REPORT OF COMMITTEE ON RESOLUTIONS

The Committee on Resolutions, submits for your approval the following report:

That our sincerest thanks and deepest appreciation be tendered our outgoing president, Mrs. M. P. Ravenel, for the splendid work accomplished during the year, especially for her brilliant idea of founding the Scholarship Fund.

Our sincerest thanks to the Woman's Auxiliary of Marion County, and their efficient president, Mrs. H. O. Daniel, for the gracious hospitality extended us, for the ride over the city affording us the opportunity of visiting the historical places so dear to the hearts of us all, and for the musical treat and tea at the attractive home of Mrs. E. T. Hornback.

To the library for our assembly room.  
To the Missouri State Medical Association for furnishing us with a stenographer.

To our distinguished guest, Dr. William Gerry Morgan, President-Elect, American Medical Association, Dr. T. W. Cotton, President, and Dr. W. C. Gayler, President-Elect of the Missouri State Medical Association, who left their own meeting to grace our luncheon by their presence, thereby assuring us of their appreciation and cooperation.

To Dr. Harriet S. Cory, St. Louis, for her excellent, interesting and instructive talk.

Mrs. J. De Voine Guyot, Higginsville.

On motion, seconded and carried, the report was adopted.

Mrs. Gillham moved that Mrs. C. W. Greene, Columbia, Chairman of the Public Welfare Committee, Missouri Federation of Women's Clubs, be given a few minutes to talk on Crippled Children. The motion was seconded by Mrs. H. L. Banks and carried.

Mrs. Greene traced briefly the history of the work in Missouri in an interesting talk.

On motion of Mrs. U. J. Busiek, seconded and carried, the meeting adjourned.

## LUNCHEON, WEDNESDAY NOON,

May 14, 1930

At 12:30 p. m. the Woman's Auxiliary and guests met at the Presbyterian Church where lunch was served. Following the luncheon the President, Mrs.

Ravenel, introduced the following guests who briefly expressed good will and interest in the Auxiliary: Dr. Wm. Gerry Morgan, President-Elect, American Medical Association; Dr. T. W. Cotton, President, and Dr. W. C. Gayler, President-Elect, Missouri State Medical Association; and Mrs. A. W. McAlester, President-Elect, of the Auxiliary.

The President introduced Dr. Harriet S. Cory, St. Louis, State Chairman Social Hygiene Committee of the League of Women Voters, who talked on "The Place of Social Hygiene in a Public Health Program." Dr. Cory is a forceful speaker, well informed and capable. The audience was most appreciative.

Reports were made by presidents of county auxiliaries as follows: Mrs. F. E. Dexheimer, Columbia, for Boone; Mrs. W. L. Kenney, St. Joseph, for Buchanan; Mrs. F. H. Rose, Albany, for Gentry; Mrs. J. P. Ferguson, Springfield, for Greene; Mrs. M. A. Hanna, Kansas City, for Jackson; Mrs. H. F. Parker, Warrensburg, for Johnson; Mrs. C. C. Cummings, Joplin, for Jasper; Mrs. Ola Putman, Marceline, for Linn; Mrs. W. E. Koppenbrink, Higginsville, for Lafayette; Mrs. S. T. Ragan, Moberly, for Randolph-Monroe; Mrs. H. O. Daniels, Hannibal, for Marion; and Mrs. L. S. James, Blackburn, for Saline.

## MEETING OF THE EXECUTIVE BOARD

The new Executive Board met in the parlor of the Presbyterian Church, Hannibal, at 3:30 p. m., May 14, 1930. The President, Mrs. A. W. McAlester, presided. The following members were present: Mrs. A. W. McAlester, Mrs. W. M. Bickford, Mrs. M. P. Ravenel, Mrs. J. De Voine Guyot, Mrs. H. C. Brashear, Mrs. R. C. Haynes, Mrs. L. S. James, Mrs. Hudson Talbott, Mrs. U. J. Busiek, Mrs. C. M. Sneed, Mrs. H. O. Daniel, Mrs. P. L. Patrick, Mrs. C. B. Summers, and Mrs. David S. Long.

The President gave a few words of greeting, asking the continued cooperation of all members. The Scholarship Fund was discussed and the President appointed the following Committee on Quota: Mrs. Ravenel, Mrs. Bickford, Mrs. Talbott, and Mrs. Busiek.

Following adjournment the delegates and guests were entertained at the home of Mrs. E. T. Hornback, with a delightful musical tea.

## NOTES

Mrs. David Long, Harrisonville, recording secretary of the state Auxiliary, organized an Auxiliary chapter in Livingston County in September. Fourteen women attended the meeting and were enthusiastic over the organization.

Mrs. George H. Hoxie, Kansas City, former president of the Woman's Auxiliary to the American Medical Association, was named by President Hoover on a special committee to receive and give consideration to reports of a nation-wide survey on child health and child welfare emanating from the White House conference on child health and protection appointed by President Hoover some time ago. The conference met at Washington November 19 and was addressed by the President. The conference consisted of about 2500 delegates, all of them having been invited by the President to attend the meeting.

Mrs. A. W. McAlester, Kansas City, state president of the Woman's Auxiliary, was hostess at a de-



lightful buffet luncheon at her home, Thursday, October 9, during the week of the Kansas City Southwest Clinical Society. The guests consisted of the executive board and county presidents of the Auxiliary and guests from other states. Mrs. McAlister was assisted by members of the Jackson County Auxiliary. Mrs. A. B. McGlothlin, St. Joseph, president-elect of the Auxiliary of the American Medical Association, and Mrs. U. J. Busiek, president-elect of the state Auxiliary, were honor guests. A tea was given by members of the Jackson County Auxiliary for the wives of visiting physicians.

## BOOK REVIEWS

**HANDBOOK OF PEDIATRIC PROCEDURES.** By Francis Scott Smyth, M.A., M.D., Assistant Professor of Pediatrics, Washington University, etc., and Edith I. M. Irvine-Jones, M.B., Ch.B., Physician to Out-Patients, Washington University Dispensary, etc. New York: The Macmillan Company. 1930. Price \$2.50.

This handy little volume is a compilation of pediatric procedures useful not only in the diagnosis and treatment of children's ailments but helpful as a ready reference book to anyone engaged in the practice of clinical medicine. It contains a wealth of material not found in the average physician's library, or at least extractable only with considerable difficulty. For instance, there are tables of the height-weight-age ratio, time of the appearance of the ossification centers, blood pressure values in children, the technic of blood counts, feces examinations, the making of bacteriological cultures and smears, laboratory methods to be used in the detection of acidosis, alkalosis, diabetes, nephritis, etc. In the section on therapy will be found caloric values of foods, how to figure and prepare formulas for the artificial feeding of infants, sample dietaries for older children, prophylaxis and treatment of diphtheria, measles, scarlet fever, meningitis, how to compute insulin requirements, technic of lumbar and cistern puncture, favorite prescriptions, and many other things. There is so much to commend in this book that one hesitates to criticize anything, and yet it would seem that in their striving for conciseness the authors at times abbreviate too much. Not everyone, for example, who reads this book would understand the chemical equivalent of  $\text{CaCl}_2 \cdot 2\text{H}_2\text{O}$  or even  $\text{BHCO}_2$  and  $\text{NaHCO}_3$ . And it would be better to give both apothecary and metric equivalents in dosage thereby avoiding incongruities like "Santonin,  $\frac{1}{2}$  grain for a child of 10 kilograms." However, taken all in all, this book is one of the best values for the money with which the reviewer is familiar.

T. C. H.

**SURGICAL CLINICS OF NORTH AMERICA.** (Issued serially, one number every other month.) Volume 10, number 5. (Pacific Coast Number, October, 1930.) 271 pages with 136 illustrations. Per Clinic year (February, 1930 to December, 1930), paper \$12.00; cloth \$16.00. Philadelphia and London: W. B. Saunders Company.

The articles in this issue of the Surgical Clinics have been contributed by the fellows of the Pacific Coast Surgical Association. This association is composed of surgeons living in California, Oregon, Washington, British Columbia, and Hawaii. This is an exceedingly interesting number.

**THE MEDICAL RECORD. Visiting List or Physician's Diary for 1931.** Revised. New York: William Wood and Company. Price \$2.00.

The 1931 edition of The Medical Record Visiting List well sustains the excellent features of previous editions.

**HANDBOOK OF THE VACCINE TREATMENT OF CHRONIC RHEUMATIC DISEASES.** By H. Warren Crowe, D.M., B.Ch. (Oxon.), M.R.C.S., L.R.C.P., Director of the Charterhouse Rheumatism Clinic; Late Cons. Physician (Vaccine Treatment) Yorkshire Home for Incurable and Chronic Diseases. Oxford University Press, American Branch, 114 Fifth Avenue, New York. 1930. Price 80 cts.

In this short handbook Dr. Crowe gives a working outline of his vaccine treatment of arthritis as carried out at the Charterhouse Rheumatism Clinic, London. It is a summary of his views published in earlier books. He regards arthritis (excluding acute rheumatic fever, gonorrheal arthritis and the other specific arthritides) as always and only infectious in origin, that therefore the vaccine treatment is the only adequate etiological cure, and that this treatment is effective in "50 to 90 per cent" of the cases, depending on the stage in which the individual is seen. He believes that the current and traditional method of dosage of vaccine has been grossly overdone and has provoked unwarranted reactions, much in the same way as was done in the early use of Koch's tuberculin. He insists that minimal doses of vaccine give overwhelmingly better results, and he gives very definite criteria for distinguishing the effect of each dose in the form of (1) favorable response, (2) local reaction, (3) general reaction, and relapse of symptoms following favorable response. He believes that osteoarthritis and atrophic arthritis depend in varying degree on infections with streptococci and with a variety of staphylococcus which he has named *micrococcus deformans*. He utilizes a polyvalent vaccine of many streptococci isolated in arthritic cases, and a vaccine of *m. deformans*, injecting both at stated intervals.

Although the writer's style is somewhat dogmatic his suggestions merit the attention of every one interested in arthritis. W. B.

**SYMPTOMS OF VISCERAL DISEASE. A Study of the Vegetative Nervous System in Its Relationship to Clinical Medicine.** By Francis Marion Pottenger, A.M., M.D., LL.D., F. A. C. P., Medical Director, Pottenger Sanatorium for Diseases of the Lungs and Throat, Monrovia, California, etc. Fourth edition. With eighty-seven text illustrations and ten color plates. St. Louis: The C. V. Mosby Company. 1930. Price \$7.50.

This fourth edition of Pottenger's book follows closely the plan of the previous editions, the first of which appeared in 1919. The scope of the book may best be stated by a quotation from the preface: "An understanding of the vegetative nervous system and the activities of the endocrine glands will explain to the clinician most of the physical acts connected with visceral function and furnish the bridge between the pathological changes in tissues and the expression of the disease in altered organic function." With this as his main thesis the author devotes some four hundred pages to a discussion of the vegetative nervous system, its relationship to the symptoms of visceral disease and the clinical application of some of these relationships.

Two important facts defeat the success and practical value of this effort, namely, our very incom-

plete knowledge of the workings of the vegetative nervous system and our gross ignorance, relatively speaking, of the physiology of the various endocrine glands. There are very few important factors in the functioning of either of these two intimately related systems that are not the subject for controversy upon fundamental points. It cannot be denied that there has accumulated an abundance of experimental and clinical evidence in this field, but the gaps in our knowledge are too large and too numerous to permit a comprehensive and accurate explanation of clinical symptoms in terms of the endocrine glands and the vegetative nervous system. Any one who at present attempts such a task will, like this author, wander endlessly in a maze of suppositions, surmises and half statements, as for instance: "When an important organ is inflamed, *there is a tendency* for the afferent impulses to cause reflex action although such action may not materialize in symptoms which are recognizable, because of compensation or inhibition; and, under certain circumstances, the action, the reverse of that expected may occur."

When he describes the physical findings and reflexes found in tuberculosis the author is on somewhat firmer ground. Doctor Pottenger, in emphasizing the reader's attention upon certain sensory, motor and trophic changes in the chest wall associated with pulmonary disease, has stimulated a study of their etiologic and diagnostic implications. It remains to be shown by extended clinical pathological experience whether these and similar changes are usual and recognizable accompaniments of visceral disease brought about through stimuli along definite nerve paths. If this can be done we shall have taken a valuable stride forward in diagnosis and practice. J. E. C.

**INFANT NUTRITION.** A Textbook of Infant Feeding for Students and Practitioners of Medicine. By Williams McKim Marriott, B.S., M.D., Professor of Pediatrics, Washington University School of Medicine; Physician in Chief, St. Louis Children's Hospital, St. Louis. Illustrated. St. Louis: The C. V. Mosby Company. 1930. Price \$5.50.

Fifteen years ago the all-important subject of infant nutrition was so heavily laden with polysyllables and percentages, that calories and vitamins, not to mention the infants themselves, were in a fair way to be slighted. In the midst of the honest confusion which has so beset us, Dr. Marriott has unquestionably done more than anyone else to bring about simplification. He takes as his golden text, "Give the baby enough." He then explains how this may be done with both chemical and bacteriological safety.

The book contains 359 pages of reading matter, of which 165 are devoted to the study of the normal infant,—a gratifyingly high proportion. With the exception of one chapter it is almost elementary in the simplicity with which it leads up to etiologic and therapeutic conceptions of profoundest significance. The exception referred to is the chapter on anhydremia, acidosis, and alkalosis. Written in collaboration with Dr. A. F. Hartmann, it presents their chemical researches into these subjects in a lucid though (unavoidably) highly technical manner. One of the most remarkable contributions of the book is the description of how the increasingly well known "Hartmann's combined solution" (sodium lactate, sodium chloride, potassium chloride, calcium chloride) was evolved. The demonstration that the body can make this solution beneficial in

either acidosis or alkalosis renders elaborate blood tests unnecessary. The emphasis given to the alkalosis resulting from prolonged vomiting should certainly dampen the practitioner's zeal for the diagnosis of acidosis and for the administration of bicarbonate of soda to such patients.

One feature of Dr. Marriott's book is only partly advantageous. The omission of the usual tedious list of "So-and-so has observed," "Blank and his co-workers state," cannot but gladden the heart of any reader of medical literature; but the same reader may want to know what articles on a subject in which he is particularly interested the author has found helpful. It seems to this reviewer that a brief bibliography appended to each chapter would not get in the reader's way and would help enormously one who cared to study further without making his own less competent selection of literature.

The only other detectable flaws are the slight marring of the text by errors in printing, and the poor grade of paper used.

Finally, it is quite clear that any student, general practitioner, or pediatrician who desires the most concise "evaluation of present-day knowledge of infant nutrition on the basis of actual clinical trial" will find it essential to own this book. P. J. W.

**THE SURGICAL CLINICS OF NORTH AMERICA.** (Issued serially, one number every other month.) Volume 10, No. 4. (Southern Number—August, 1930) 268 pages with 96 illustrations. Philadelphia and London: W. B. Saunders Company. Per clinic year, (February, 1930, to December, 1930.) Paper, \$12.00; cloth, \$16.00.

This number of the Surgical Clinics of North America contains contributions from the principal medical centers in the South. The contributors are surgeons who have won distinction in their fields and present a discussion of a large variety of surgical conditions. There are articles from the clinics of surgeons in Nashville, New Orleans, Raleigh, N. C., Richmond, Va., Memphis, Louisville, Norfolk, Va., and Columbus, N. C.

**NURSING IN EMERGENCIES.** By Jacob K. Berman, A.B., M.D., F.A.C.S., Assistant in Surgery, Indiana University School of Medicine, etc. With one hundred nine illustrations. St. Louis: The C. V. Mosby Company. 1929. Price \$2.25.

Dr. Berman set out to prepare a handy reference book for nurses in handling emergencies. His completed text is a compend that bears close study and in a surprisingly compact manner covers all the complications a nurse is likely to meet as emergencies, from shock to accidents during pregnancy. A. S. W.

**PRACTICAL MASSAGE AND CORRECTIVE EXERCISES.** With Applied Anatomy. By Hartvig Nissen, Late President of Posse Normal School of Gymnastics, etc. Fifth Edition, Revised and Enlarged. By Harry Nissen, President, Posse-Nissen School of Physical Education, Boston, Mass. Illustrated with 72 original half-tone and line engravings. Philadelphia: F. A. Davis Company. 1929. Price \$2.50.

"Specialist" Nissen's book belongs more to the lay department of physical education than to the medical sciences. His idea is that massage and physical



exercises are inseparable. The book has little appeal to physicians and nurses except those doing work in physical education. A. S. W.

**A TEXTBOOK OF MASSAGE.** For Nurses and Beginners. By Maude Rawlins, Instructor of Massage to Nurses at St. John's Hospital, Brooklyn, etc. Illustrated. St. Louis: The C. V. Mosby Company. 1930. Price \$2.00.

This is an adequate text on massage for nurses from a medical point of view. It is of great importance to the nurse but only through her is it of value to the physician. The text is compact and makes an excellent reference book for the administration of massage in different medical conditions and in emergencies. A. S. W.

**ALLERGIC DISEASES.** Their Diagnosis and Treatment. By Ray M. Balyeat, M.D., F.A.C.P., Lecturer on Allergic Diseases in the University of Oklahoma Medical School, etc. Illustrated with 87 engravings, including 4 in colors. Third edition, revised and enlarged. Philadelphia: F. A. Davis Company. 1930. Price \$5.00.

This book was written for the purpose of acquainting the laity with allergy. It is in no sense a scientific treatise for the medical profession, nor does it pretend to be. It is well written and various allergic manifestations are set forth in understandable detail. The method of presentation is simple and profuse illustrations exemplify the text. To some, this may detract from the interest in the book. For instance, various domestic animals are depicted in primer form to illustrate the words horse, chicken, etc. They are placed there for emphasis, however, and as such serve their purpose. The information that allergic patients should know in order to cooperate intelligently with their physician as well as to help themselves seems quite complete. The present edition is considerably enlarged and should be a useful guide for patients.

H. L. A.

**DOSAGE TABLES FOR RÖNTGEN THERAPY.** By Professor Friedrich Voltz, Head of the Radiological Department, University Clinic for Women, Munich. Translated from the Second German Edition, Oxford University Press, American Branch, 114 Fifth Avenue, New York City. 1930. Price \$2.50.

This small volume is a classic. It is of great value to the roentgenologist doing therapy work. Deep therapy measurements are so complex that no thought of anything else can be entertained while studying these tables. For years we have waited for something more simple than these algebraic tables to gauge the dose for deep therapy. Like most German authors Voltz does not overlook the details. E. H. K.

**MANUAL OF THE DISEASES OF THE EYE.** For Students and General Practitioners. By Charles H. May, M.D., Director and Visiting Surgeon, Eye Service, Bellevue Hospital, New York, 1916 to 1926, etc. Thirteenth edition, revised. With 374 original illustrations including 23 plates, with 73 colored figures. New York: William Wood and Company. 1930. Price \$4.00.

The purpose for which this manual is written, designed as a textbook for the undergraduate and reference book for the general practitioner, serves

capably the author's thought. The revision by later editions has kept the book foremost in the school as the textbook on ophthalmology. This edition presents new cuts and diagrams. The chapter on slit lamp and the corneal microscope and a more complete chapter on glaucoma are the outstanding features.

The author has elaborated on details in places, making the book more complete than necessary, but a factor of all in their own individual field, is to decide "what is enough." The book deserves its place and the author its praise. C. J. M.

**DISEASES OF THE URINARY TRACT IN CHILDREN.** By Edwin Beer, M.D., and Abraham Hyman, M.D. With 50 illustrations. New York: Paul B. Hoeber, Inc. 1930. Price \$6.00.

This work deals with a subject that is becoming more important every year. Congenital anomalies of the urinary tract are not as infrequent as were formerly thought. The chapter on "Methods of Examination" reveals the rapid advance that has been made in urology as applied to children.

Few pediatricians will agree with the statement that, when the oliguria or anuria of acute nephritis of scarlet fever does not respond to medical measures, and symptoms of uremia are impending, operative treatment (decapsulation of the kidney) is indicated.

Illustrative case histories and an up-to-date bibliography at the end of each chapter make the book very valuable. H. L. D.

#### ROENTGENOLOGY OF UPPER RESPIRATORY TRACT

Henry K. Pancoast, Philadelphia (Journal A. M. A., Nov. 1, 1930), says that the portion of the upper respiratory tract in the neck has been a neglected field for roentgenologic study. He says that practically all pathologic conditions of the larynx and neuromuscular disturbances present some recognizable phenomena or abnormal appearances, many of which are characteristic. The examination must be both fluoroscopic, for studying moving parts, and roentgenographic, for purposes of record and finer details. The study of phonation and the swallowing act is essential in all cases. He describes both of these functions.

#### INTERNAL DRAINAGE

The term "internal drainage" is used to designate the spilling of pus from a diseased bronchus to neighboring bronchi of either lung. William B. Faulkner, Jr., San Francisco (Journal A. M. A., Nov. 1, 1930), finds that internal drainage is a definite entity, and an understanding of it is important in both the diagnosis and treatment of pulmonary suppurations as well as in the prevention of postoperative pulmonary complications. Intrabronchial injections of iodized oil have permitted a study of internal drainage and of the factors on which it depends. Pus within a bronchus may spill to predetermined areas, depending on the posture of the patient, the site of the primary lung lesion and the patency of the bronchus. This drainage is especially marked when the pus is of low viscosity and of great quantity. The application of the principles of internal drainage has enabled Faulkner to localize more accurately the site of pulmonary abscesses, to lessen the number of patients requiring operation, to lower the operative risk, and to increase the percentage of cures.

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## NEGLECTED OPPORTUNITIES FOR EPIDEMIOLOGIC STUDY

Since knowledge of the epidemiology of a disease implies knowledge of all of the conditions in nature under which this disease occurs and implies knowledge of the conditions under which the disease does not occur, E. L. Bishop, Nashville, Tenn. (*Journal A. M. A.*, Aug. 23, 1930), says it is obvious that the acquirement of such knowledge involves observations over a long period of time of groups of individuals representing various types, under various complex conditions, among whom the disease expresses itself with varying degrees of force. Since epidemiology concerns itself with a mass study of man's reaction to the invasion of micro-organisms and the environmental influences under which he lives, which of the three elements in public health organization has the largest opportunity for epidemiologic observation? Quite obviously the answer must be, the local health department. True, state health departments and the federal health service occupy positions of importance and can render service not possible to the local health service, but neither is as near the field of observation and neither can, except at needless and prohibitive expense, duplicate the facilities of a local health service. The federal service correlates the study into a national comprehension of the problems as a whole and undertakes research which is possible only on a national scale. In addition it must undertake certain studies which neither the state nor the local health department is equipped to do. Similarly the state can correlate local studies into a state comprehension of the problems and can develop these studies into state-wide application. It must also plan and direct the study program as a whole in such a way that each local health department may make a definite contribution but that no department will duplicate work done elsewhere. In addition, the state can furnish expert consultant service to the local department, supervise the studies as a whole, and assemble such supplementary resources as are necessary. The local health department, however, is the agency strategically situated to make observations, collect information and aid in the interpretation of these basic data in terms of local conditions, and in turn allow for deduction relative to the expression of disease under different conditions. Hence, it is seen to be the vital link in the chain of facilities for epidemiologic research and study just as it is the vital link in the chain of organized facilities for the administration of public health work. While under the present organization of health service in this country much can be accomplished, yet before such a plan as is contemplated in this discussion can reach its greatest development, certain basic improvements must be effected: 1. Local health service must be put on a professional basis and under the direction of a whole-time health officer, who will have at his command a more adequate budget than now prevails. 2. The personnel of such departments and particularly the directing health officer must be especially educated in epidemiologic methods. 3. States must recognize their responsibility and meet it by establishing bureaus or departments of epidemiology in the state health department that will be able to stimulate activity on the part of the local health officer and to correlate local studies into a comprehensive program which will have state-wide as well as local application. The federal government should, first of all, have a corps of highly trained epidemiologists to assist states in organizing such departments and

in coordinating the whole program into a nationwide plan for both the improvement of epidemiologic service locally and for increasing the sum of human knowledge on the subject of health and disease.

## ECONOMIC RESULTS OF MODERN TREATMENT OF DIABETES

Byron D. Bowen, Buffalo (*Journal A. M. A.*, Aug. 23, 1930), analyzes the status of eighty-one patients treated with insulin compared with their prediabetic condition. Fifty-two of the adults have been receiving insulin for at least four years, many of them for seven years. Of the twelve children, the average period of treatment is three years. Forty-eight of the sixty-nine adults stated that they felt as well as before the inception of the diabetes, and nine volunteered the information that they felt better. Of the remaining twelve who did not feel as well, three developed diabetes in childhood, one was going through the menopause, one was 65 years of age, three had not been given insulin until late in the disease, and three others had great difficulty in adapting themselves to the life of a diabetic patient. Forty-three said that they could not exert themselves physically as they formerly could without fatigue. Many of them remarked, however, that they could do as much as ever for a short time. Many experienced insulin reactions during exercise. Twenty-six were convinced that they could do as much work as ever and that they experienced no fatigue; all of these led fairly active lives and two of them were farmers. Fifty-four believed that they could do as accurate, sustained and concentrated mental work as ever, while thirteen felt that this function had been depressed. Many commented that they felt a disturbance of mental acuity only during insulin reactions. Twenty-one of these patients were housewives or did housework, ten were students, six were school teachers, ten did hard manual labor, while nineteen others had sedentary occupations: clerks, salesmen and business men. Of these sixty-six, ten found it necessary to give up their former occupation, but five of them had suffered the maximum devastation of diabetes before insulin. All of the housewives were able to carry on their former work without additional help. All of the twelve children as reported by the parents are able to keep up with their playmates without fatigue; they apparently lead active childhood lives and are growing normally. As a class these children do remarkably well in school.

## ACUTE TUBERCULOUS IRITIS

F. H. Verhoeff, Boston (*Journal A. M. A.*, Aug. 23, 1930), relates the case of a man, aged 64 with retinitis pigmentosa, blind for more than twenty years, who developed in one eye acute fibrinous iritis clinically similar to acute "rheumatic" iritis. Roentgen examination of the chest showed marked evidences of old pulmonary tuberculosis. There was no cough or elevation of temperature. On account of pain the eye was removed about five days after the onset of the subjective symptoms. Microscopic examination showed small recent tuberculous foci in the iris which had given rise to a fibrinous exudate in the pupil. The acute reaction may have been due to an allergic condition of the patient toward tuberculous toxins. Since the case does not conform to any type of tuberculous iritis hitherto recognized, it suggests that some, possibly many, cases of supposed "rheumatic" iritis are due to tuberculosis.













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